

How Water Use Efficiency Investments Translate Into Local Jobs

Economic Roundtable

Research Findings and Recommendations

GLAC-IRWMP meeting @ LA County Department of Public Works, Alhambra

December 7th, 2011 • 9:30 a.m.



*International Association of
Plumbing & Mechanical Officials*



Planning, Data, and Feedback Contributors:



SANITATION DISTRICTS OF LOS ANGELES COUNTY



CITY OF LOS ANGELES



SANITATION
DEPARTMENT OF
PUBLIC WORKS



CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD



MIA LEHRER+ASSOCIATES
LANDSCAPE ARCHITECTURE



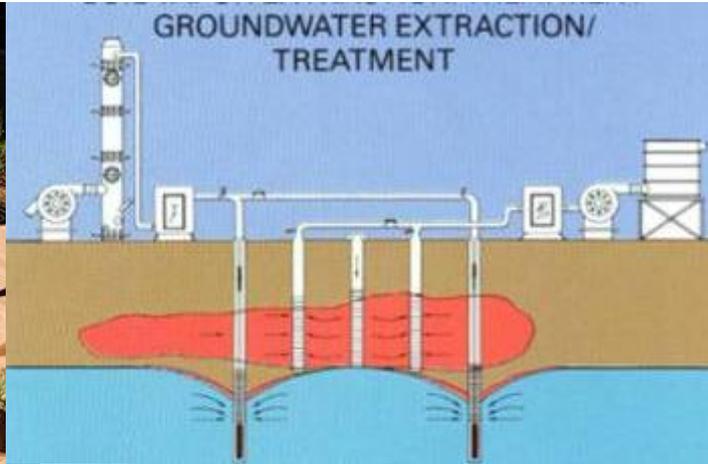
Overview

Investments in water use efficiency provide *economic* benefits that compliment the *environmental* benefits from using fewer acre-feet of water.

This report quantifies the economic and job benefits that result from water use efficiency investments in Los Angeles.

Water Use Efficiency refers to the suite of activities that make our water use more efficient, including recycled water use, stormwater capture and re-use (also known as rainwater harvesting), groundwater clean-up and remediation, and water conservation measures, including graywater.

- Paula Daniels



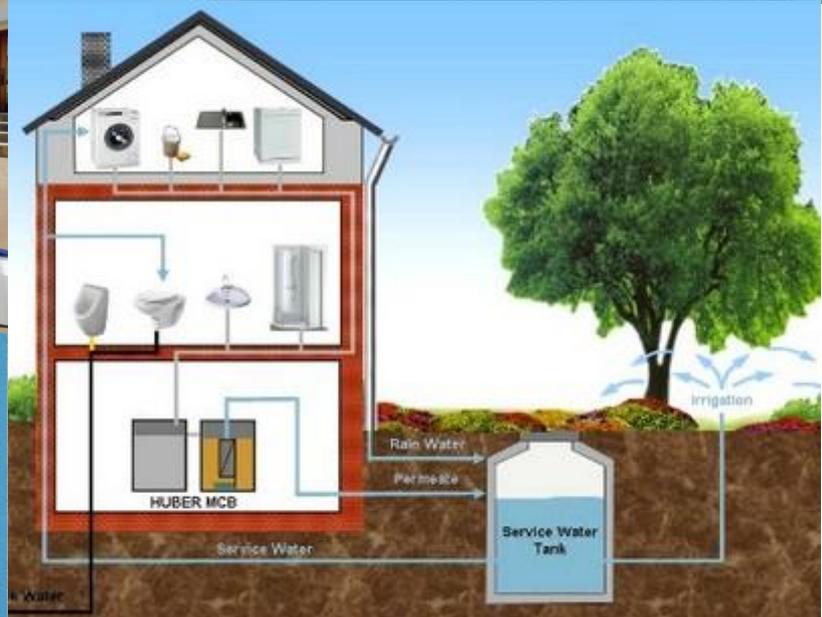
**USING YOUR HOSE AS A BROOM?
YOU COULD BE WASTING 150 GALLONS A DAY.**

If you think you waste more water indoors, take a look outside.

WATER IQ
Know your water.

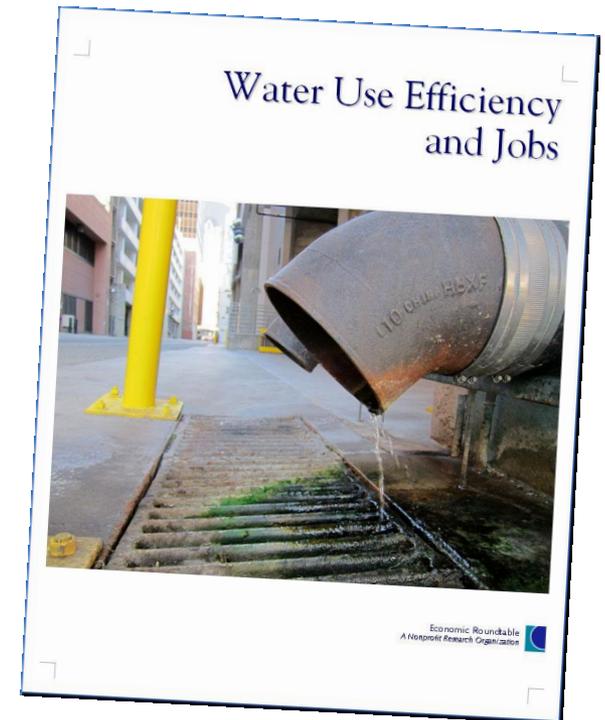
NORTH TEXAS MUNICIPAL WATER DISTRICT

Every day is a chance to save. WaterIQ.org

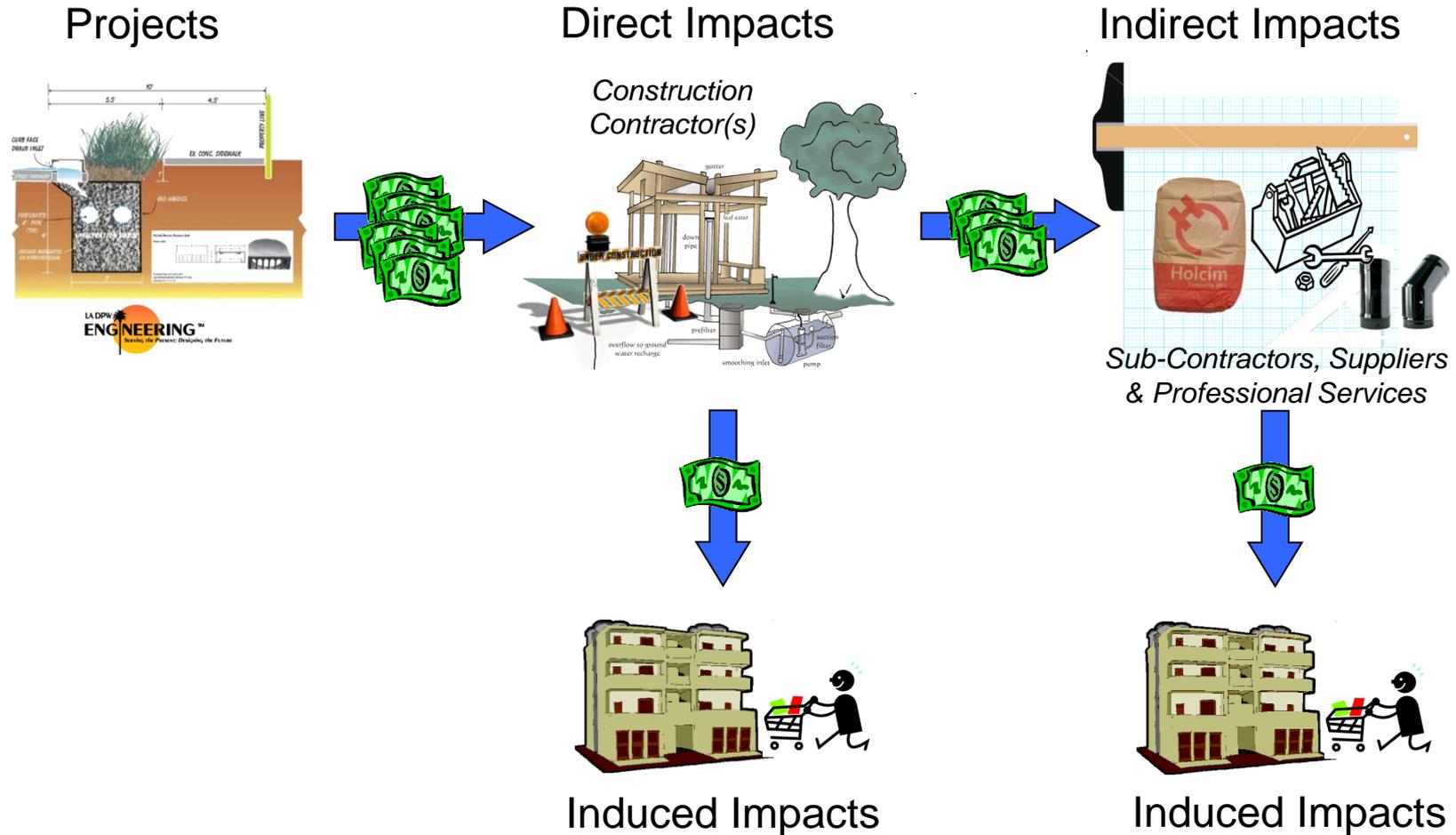


Report Outline

1. LA's Water Supply and Users
2. Identifying Industries that Make up the LA Water Sector
3. Industry Analysis
4. Jobs and Occupations in the Water Sector
5. Case Studies of Water Use Efficiency Projects in LA
 - Stormwater
 - Recycled Water
 - Water Conservation
 - Groundwater / Remediation
 - Graywater Systems Installation
 - Location of Investments
6. Policy Recommendations
7. Data Appendices



Estimating Local Economic & Job Impacts



Impacts of Recent Water Use Efficiency Projects in LA

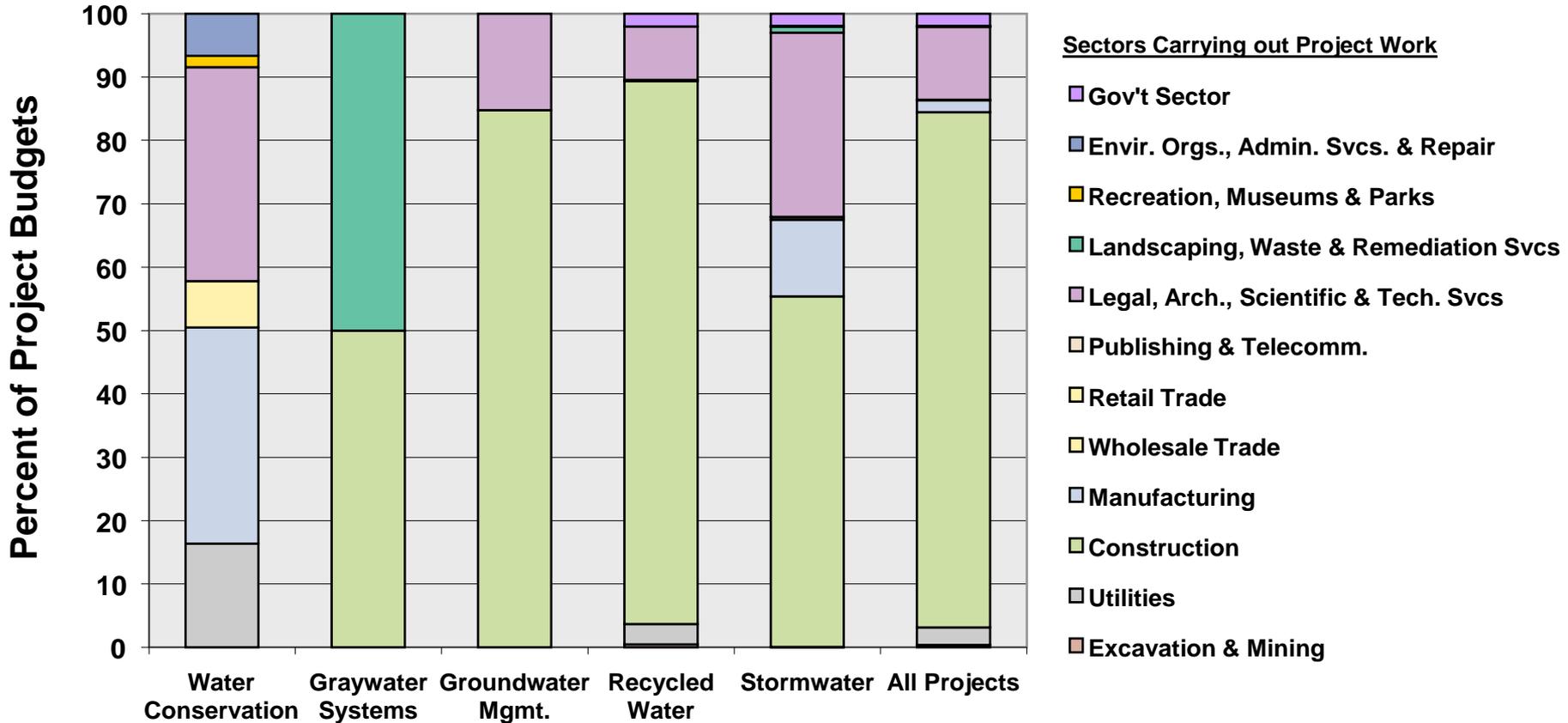
- Over \$1.2 Billion Invested in Our Sample of 53 Projects, Which Stimulated an Additional:
 - \$534 million in indirect local sales
 - \$718 million in induced local sales =
\$2.4 billion in total local sales

Impacts of Recent Water Use Efficiency Projects in LA

- These 53 Projects Provided an Estimated 8,654 Direct Person-Years of Employment in Los Angeles, Which Stimulated an Additional:
 - 3,016 indirect local
 - 4,909 induced local job = 16,579 total local

Impacts of Water Use Efficiency: *Five Categories of Investment*

Industries Carrying Out LA's Water Use Efficiency Projects



Impacts of 24 Stormwater Projects in the LA Area

- Represent Direct Investment of ~\$166 M
- Involved a Combined 160 Businesses and Government Agencies in Their Construction
- 74% (\$122 million) of Overall Investment Spent on Businesses in LA County



Source: See Water Efficiency Projects Contributors, Appendix C, in the Economic Roundtable report "Water Use Efficiency and Jobs," 2011.

For some projects, budget amounts shown are weighted.

Impacts of 24 Stormwater Projects in the LA Area

PROJECT NAME	BUDGET
Andrews Park Subsurface Storage, Use and Infiltration	\$6,860,601
Broadous Elementary School Project	\$340,991
Bull Creek Restoration Project	\$6,273,595
Elmer Avenue Project	\$1,100,000
Herondo Parking Lot Detention & Beach Infiltration	\$8,740,000
Imperial Highway Stormwater Best Mgmt. Practices	\$2,723,403
Los Angeles Zoo Parking Lot	\$13,904,243
Malibu Legacy Park	\$6,942,500
Manhattan Heights Subsurface Infiltration Gallery	\$7,708,339
Mar Vista Recreation Center Stormwater	\$4,960,015
Marshland Enhancement (Sanitation Districts of LA Co.)	\$3,421,430
Open Charter Magnet Elementary School	\$487,910

Impacts of 24 Stormwater Projects in the LA Area

PROJECT NAME	BUDGET
Peck Park Canyon Enhancement	\$6,236,396
Polliwog Park Subsurface Infiltration Gallery	\$13,429,956
Riverdale Avenue Green Street Project	\$621,332
SMB 5-1 Subsurface Infiltration Trenches	\$1,075,550
SMB 5-2 Subsurface Infiltration Trenches	\$12,760,989
SMB 5-3 Subsurface Infiltration Trenches	\$2,342,000
SMB 5-4 Subsurface Infiltration Trenches	\$4,126,500
South Park Subsurface Infiltration Gallery	\$6,441,816
Tujunga Spreading Grounds Upgrade	\$23,100,000
Westchester Stormwater BMP Project	\$23,209,451
Westminster Dog Park Stormwater Best Mgmt. Practices	\$1,452,755
Westside Park Rainwater Irrigation	\$7,289,236
Total, All Stormwater Projects	\$165,549,008

Stormwater Projects: Impacts per \$1 M Invested

- Stimulates an Estimated \$1.99 M in Total Local Sales
- Supports 13.1 Person-Years of Employment
- LA County's Multiplier Effect Slightly Higher Non-Local Portion
 - Likely due to less capital-intensive manufacturing in LA



Impacts of 18 Recycled Water Projects

- Represent Direct Investment of ~\$1.051 Billion
- Involved a Combined 61 Businesses and Government Agencies in Their Construction
- 99% of Overall Investment Spent on Businesses in LA & Orange Counties



Impacts of 18 Recycled Water Projects

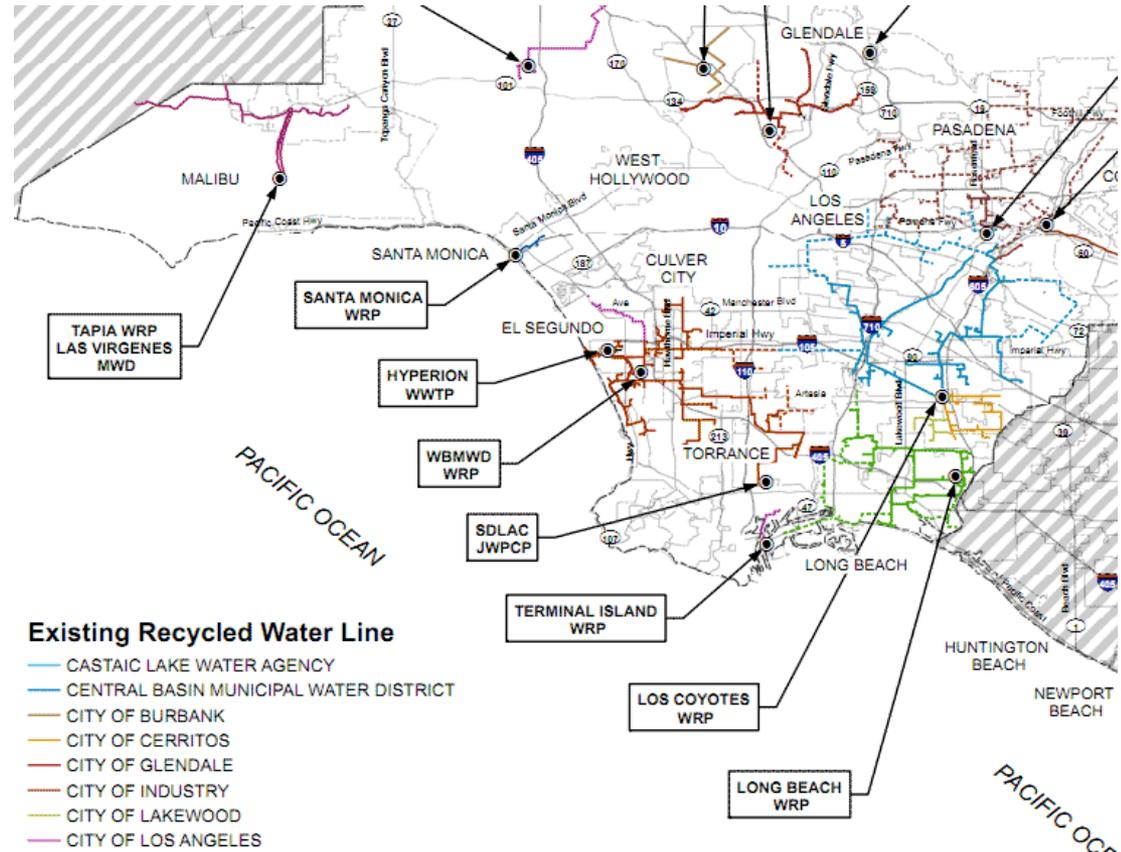
PROJECT NAME	BUDGET
Anza Avenue Lateral, Phase I	\$562,765
Anza Recycled Water Lateral, Phase II	\$609,141
Ashwood Lateral, City of Inglewood	\$119,646
California State University Dominguez Hills Lateral Extension	\$280,198
Corporate Campus El Segundo Lateral	\$97,692
Fullerton Road reclaimed Pipeline	\$4,956,233
Groundwater Recharge System (GWRS) Phase 1, Orange Co. Water District	\$501,553,783
Groundwater Replenishment Project	\$293,000,000
Harbor Refineries Recycled Water Project (1)	\$45,700,000

Impacts of 18 Recycled Water Projects

PROJECT NAME	BUDGET
Harbor Refineries Recycled Water Project (2)	\$27,700,000
Harbor Refineries Recycled Water Project (3)	\$40,000,000
Hyperion Secondary Effluent Pump Station	\$35,277
Mariposa Lateral	\$207,147
Michelson Upgrade Project	\$119,495,352
Rowland Water District: Arenth Reclaimed Water Pipeline	\$5,047,717
Title 22 Distribution System	\$44,436
Torrance Booster Pump Station	\$76,683
Whittier Narrows Water Reclamation Plant UltraViolet Disinfection System Facilities	\$11,522,886
Total, All Recycled Water Projects	\$1,051,008,954

Recycled Water Projects: Impacts per \$1M Invested

- Stimulates an Estimated \$1.95 M in Total Local Sales
- Supports 12.6 Person-Years of Employment
- Includes Some Projects in Orange County to Enrich the Data



Source: Economic Roundtable analysis, Minnesota IMPLAN Group, Inc., IMPLAN System 2009 data and 2011 software. See Water Efficiency Projects Contributors, Appendix C, in the Economic Roundtable report "Water Use Efficiency and Jobs," 2011. Picture borrowed without permission from LA chapter of the Water Reuse Association, "Draft Recycled Water Map of LA County".

Impacts of 2 Groundwater Management / Remediation Projects in the LA Area

- Represent Direct Investment of ~\$47.3 M
- Both Involve 1 Engineering Services Company and 1 Lead Construction Company
- All of the Investment was Spent on Businesses in LA County



Groundwater Management / Remediation Projects: Impacts per \$1 M Invested

- Stimulates an Estimated \$1.96 M in Total Local Sales
- Supports 12.8 Person-Years of Employment



Source: Economic Roundtable analysis, Minnesota IMPLAN Group, Inc., IMPLAN System 2009 data and 2011 software. See Water Efficiency Projects Contributors, Appendix C, in the Economic Roundtable report "Water Use Efficiency and Jobs," 2011. Pictures borrowed without permission from Silva Cell Subsurface Tree Protection and Stormwater Systems.

Impacts of 11 Water Conservation Projects in LA

- Represent Direct Investment of ~\$5 M
- Involved a Combined 16 Businesses and Public Agencies in Their Construction
- 9% (\$428 thousand) of Overall Investment Spent on Businesses in LA County



Impacts of 11 Water Conservation Projects in LA

PROJECT NAME	BUDGET
Complete Restroom Retrofit Monitoring Program (ICP Program)	\$70,000
Complete Restroom Retrofit Project	\$473,619
Food Facilities Audit, Incentive and Training Program (Enhanced Conservation Program)	\$55,000
Green Garden Program	\$607,100
High-Efficiency Toilet Distributions	\$301,500
Local Water Conservation Plans for Water Purveyors	\$223,000
MWD Conservation Proposal- Landscape Audits/Water Budgets/Equipment Incentives	\$43,750
Ocean Friendly Landscape Project	\$1,835,843
Re-circulate & Save Program (CII Incentive Program)	\$404,437
Residential Indoor Plumbing Retrofit Kits	\$269,000
Water & Energy Efficiency Multi-Family Program (Enhanced Conservation Program)	\$836,500
Total, All Water Conservation Projects	\$5,119,749

Water Conservation Projects: Impacts per \$1 M Invested

- Stimulates an Estimated \$2.1 M in Total Local Sales
- Supports 16.6 Person-Years of Employment
- Project Category Offers Opportunity for Greater Local Purchasing



Employment Multipliers per \$1 M Invested (Sales)

PROJECT TYPE	DIRECT JOBS STIMULATED
Water Conservation	9.1
Graywater Systems Installations	9.4
Stormwater Capture & Re-Use (aka rainwater harvesting)	6.6
Groundwater Mgmt. / Remediation	6.8
Recycled Water (aka Reclaimed Water)	6.6
Energy Efficiency Retrofits of Commercial Buildings	5.7
Cut & Sew Apparel Contractors	17.8
Grocery Stores	13.7
Utility Systems Construction (Dams & Conveyance Systems)	7.4
Commercial Construction	7.7
Housing Construction	5.2
Motion Picture & Video Production	3.0

Source: Source: Economic Roundtable analysis, Minnesota IMPLAN Group, Inc., IMPLAN System 2009 data and 2011 software. California Employment Development Department & Employment Projections Program, U.S. Department of Labor, U.S. Bureau of Labor Statistics. 2010. Los Angeles County Industry-Occupation Matrix 2009/2010. Data for the "Energy Efficiency Retrofits of Commercial Buildings" project type comes from the Political Economy Research Institute, UMass Amherst. 2011. "A NEW RETROFIT INDUSTRY: An analysis of the job creation potential of tax incentives for energy efficiency in commercial buildings and other components of the Better Buildings Initiative."

Employment Multipliers per \$1 M Invested (Sales)

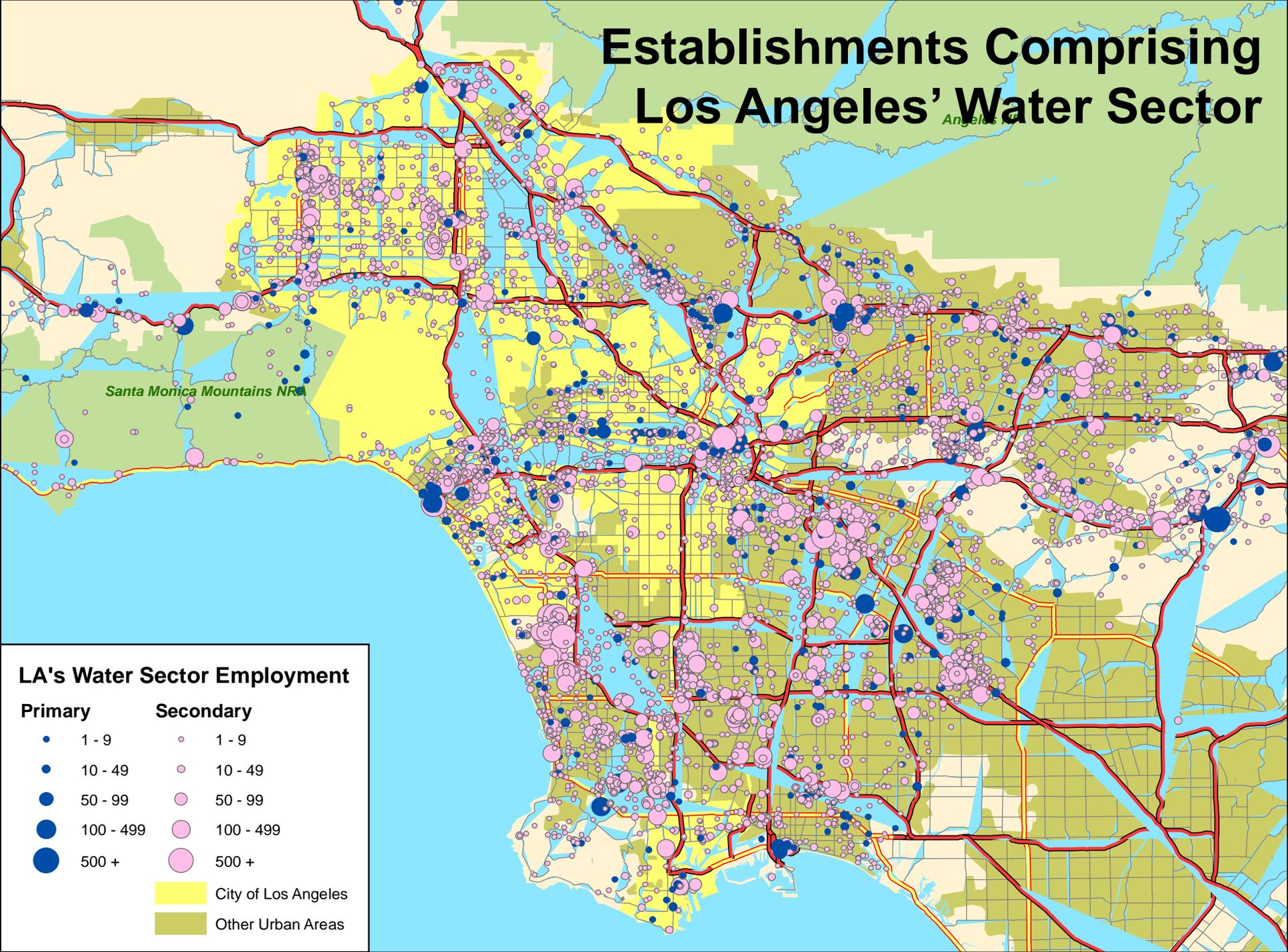
PROJECT TYPE	DIRECT JOBS STIMULATED	TOTAL JOBS STIMULATED	AVERAGE WAGES
Water Conservation	9.1	16.6	\$37,558
Graywater Systems Installations	9.4	14.9	\$33,286
Stormwater Capture & Re-Use (aka rainwater harvesting)	6.6	13.1	\$52,828
Groundwater Mgmt. / Remediation	6.8	12.8	\$50,001
Recycled Water (aka Reclaimed Water)	6.6	12.6	\$49,092
Energy Efficiency Retrofits of Commercial Buildings	5.7	13.6	-
Cut & Sew Apparel Contractors	17.8	24.5	\$29,534
Grocery Stores	13.7	18.5	\$31,382
Utility Systems Construction (Dams & Conveyance Systems)	7.4	13.7	\$75,305
Commercial Construction	7.7	13.6	\$29,551
Housing Construction	5.2	11.3	\$81,606
Motion Picture & Video Production	3.0	8.3	\$141,254

Source: Source: Economic Roundtable analysis, Minnesota IMPLAN Group, Inc., IMPLAN System 2009 data and 2011 software. California Employment Development Department & Employment Projections Program, U.S. Department of Labor, U.S. Bureau of Labor Statistics. 2010. Los Angeles County Industry-Occupation Matrix 2009/2010. Data for the "Energy Efficiency Retrofits of Commercial Buildings" project type comes from the Political Economy Research Institute, UMass Amherst. 2011. "A NEW RETROFIT INDUSTRY: An analysis of the job creation potential of tax incentives for energy efficiency in commercial buildings and other components of the Better Buildings Initiative."

Los Angeles' Water Sector



Establishments Comprising Los Angeles' Water Sector



Santa Monica Mountains NRA

Angeles CA

LA's Water Sector Employment

Primary		Secondary	
● 1 - 9	○ 1 - 9		
● 10 - 49	○ 10 - 49		
● 50 - 99	○ 50 - 99		
● 100 - 499	○ 100 - 499		
● 500 +	○ 500 +		
■ City of Los Angeles			
■ Other Urban Areas			

34 Occupations in LA's Water Use Efficiency Sector – Clusters with Potential Career Ladders

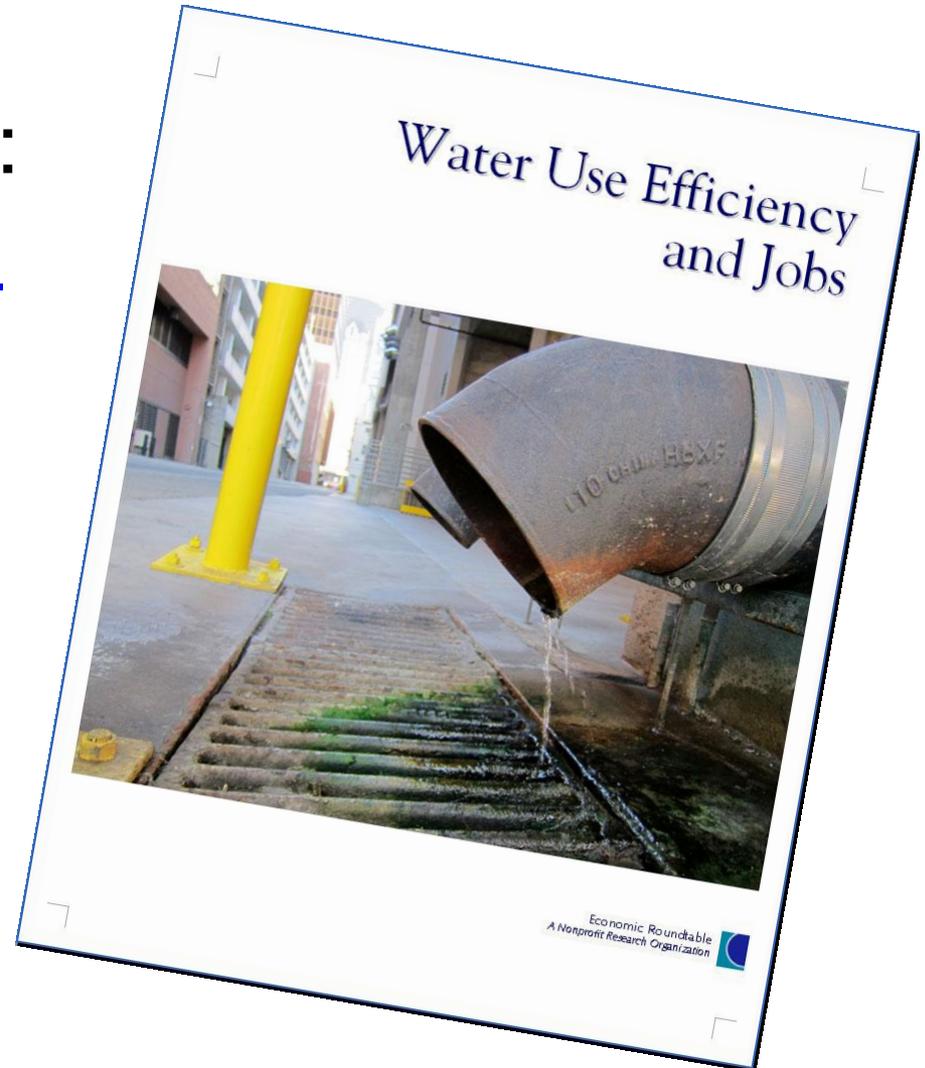
OCCUPATIONAL CLUSTERS	NUMBER OF OCCUPATIONS	CURRENT EMPLOYMENT	MEAN HOURLY WAGE
Building & Grounds / Forest & Conservation Workers	6	23,590	\$14,49 / hr.
Construction Workers	16	71,220	\$24,89 / hr.
Maintenance & Repair Workers	6	12,480	\$22,26 / hr.
Architecture & Engineering Workers	6	10,020	\$40.64 / hr.

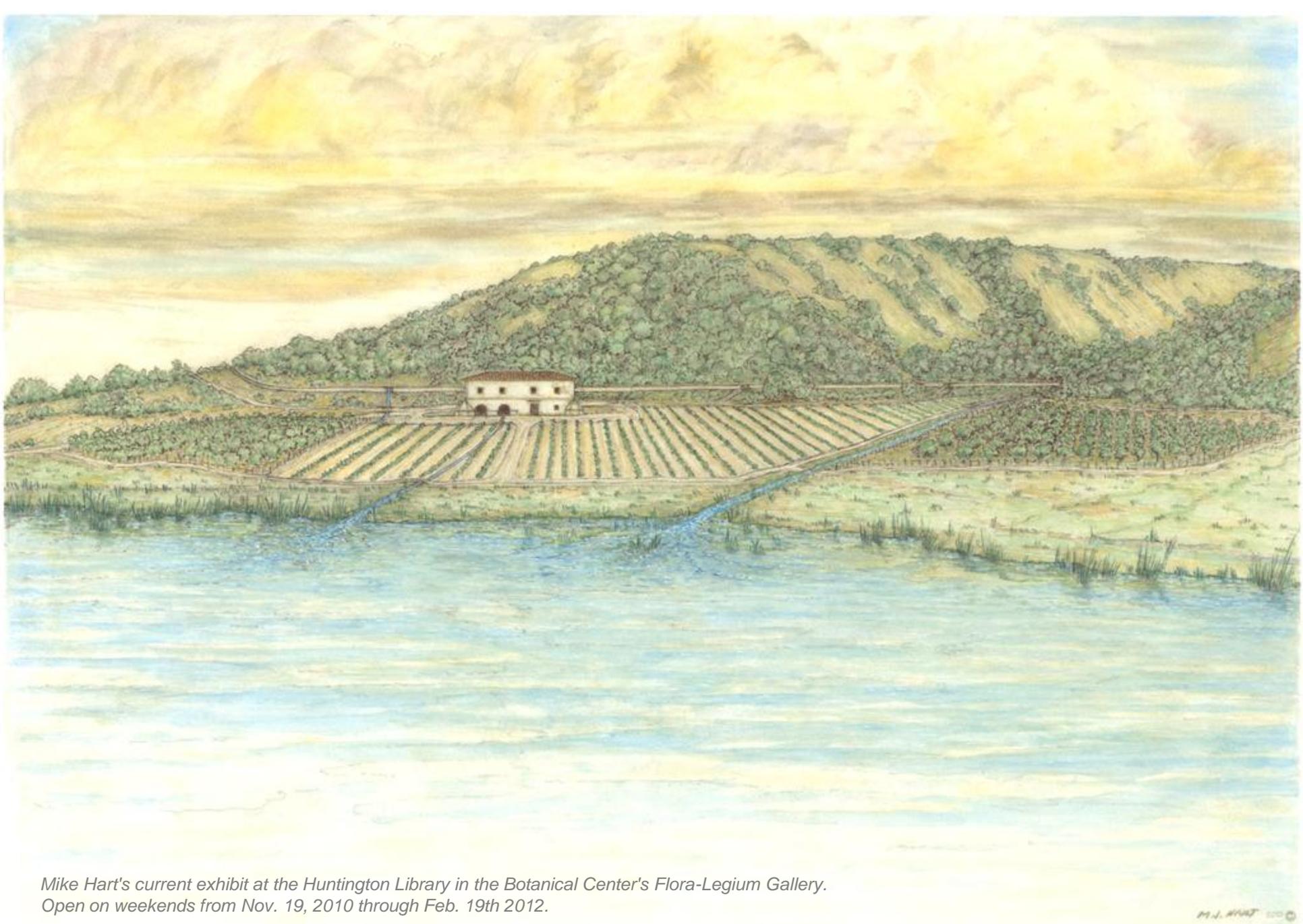
Policy Recommendations for Attaining Desired Economic and Job Impacts

1. **Funding:** Comprehensive watershed management
2. **Existing Businesses:** Provide targeted support to help local water businesses grow
3. **New Business:** Recruit new water sector businesses to Los Angeles
4. **Workforce Development:** Invest in targeted workforce training and establish uniform certification for emerging occupations
5. **Research:** Investigate growth needs of water sector businesses
6. **Community Partnership:** Involve local community stakeholders in job outreach to link local residents with local
7. **Keep Investments Local:** Invest in local infrastructures for conserving and re-using water before building more dams and conveyance systems

Download the Report

- Download for free at: www.economicrt.org
- 126 Pages
- PDF, 1.3 MB





*Mike Hart's current exhibit at the Huntington Library in the Botanical Center's Flora-Legium Gallery.
Open on weekends from Nov. 19, 2010 through Feb. 19th 2012.*

Back-Up Slides



Industries in Los Angeles' Water Sector

Water Sector - First Tier

- 6 industries that build, operate, and maintain our region's water and sewage system infrastructure, manufacture water systems equipment, and engineer improvements in water efficiency.
 - Biggest: Water Systems Operations and Sewage Treatment industry >7,500 workers.
- Average annual salaries of workers: \$49,000 to \$84,000.
- Annual direct sales of 1st tier establishments = \$2.7 billion.
- Local competitive strength in:
 - Water Supply & Irrigation Systems.
 - Sewage Treatment Facility industry

Industries in Los Angeles' Water Sector

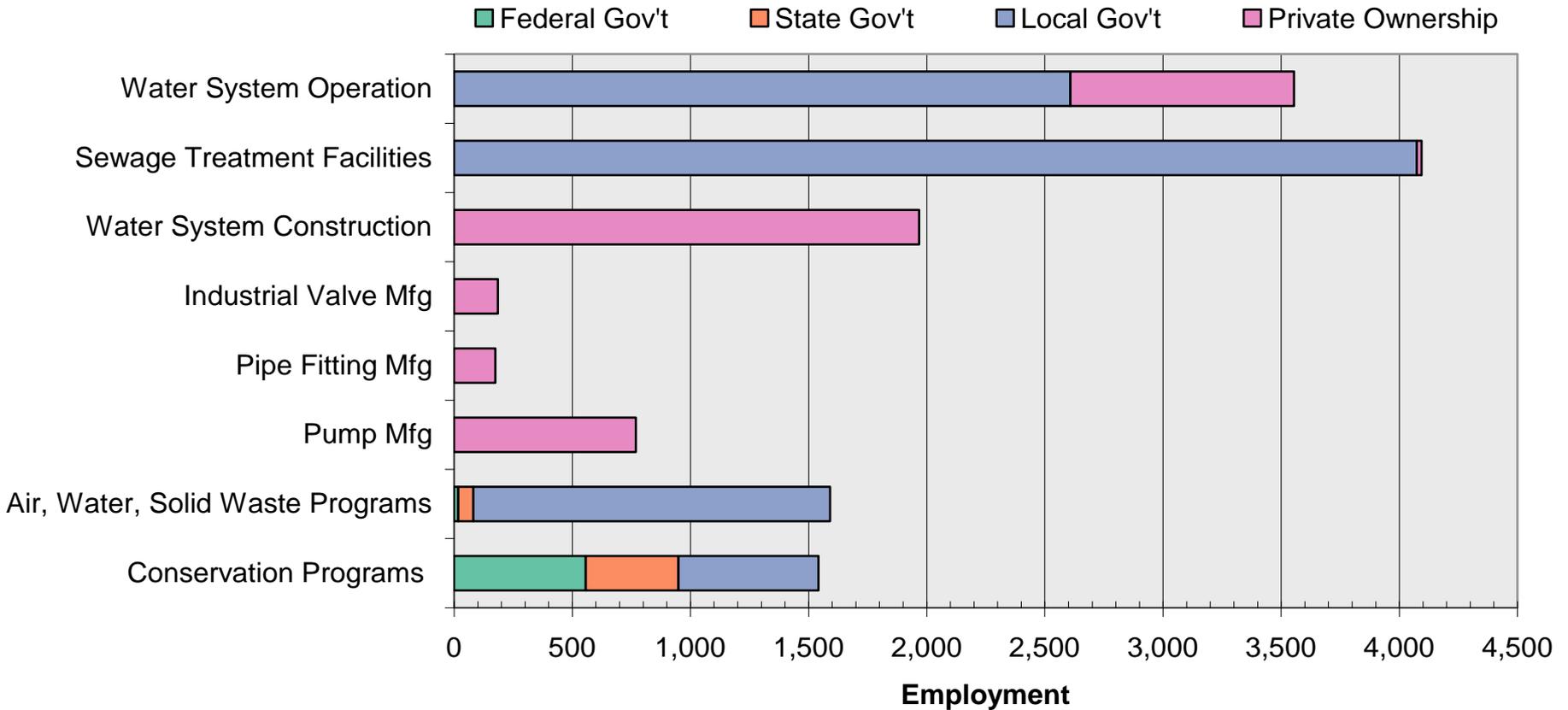
Water Sector - Second Tier

- Industries indirectly support Los Angeles' water sector by supplying goods and services to municipal water utilities as well as water and wastewater industries.
 - Professional Services (64,258 workers), average salary about \$100,000 per year.
 - Blue Collar Services (43,220 workers), average salary about \$50,000 per year.
- Employment > 150,000 in LA County.
- Annual direct sales of 2nd tier establishments = \$32.5 billion.

LA's Water Sector Establishments by Ownership Type

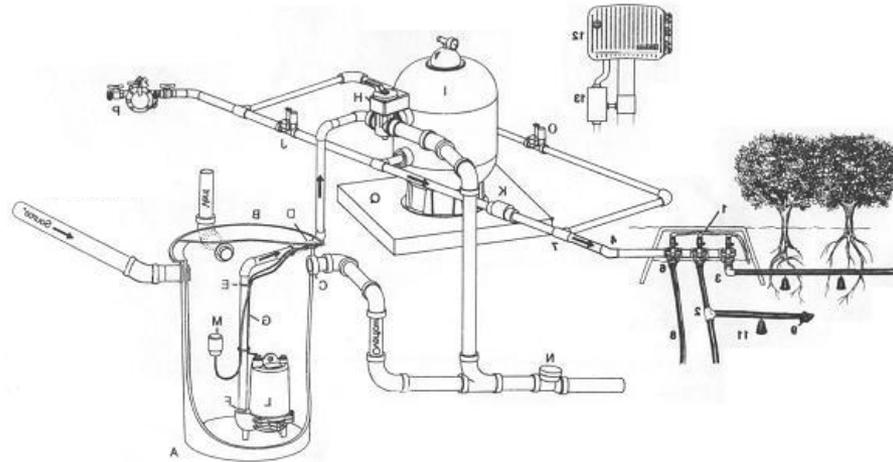
- Public Sector Accounts for 71% of Employment
- Local Government Accounting for 64% of Total
- Offers Leverage for Local Purchasing Decisions

LA's Water Sector Establishments by Ownership Type



Graywater Projects: Impacts per \$1 M Invested

- Stimulates an Estimated \$1.91 M in Total Local Sales
- Supports 14.9 Person-Years of Employment
- Rebates Could Boost Installations in New and Existing Homes, plus Commercial Buildings



How to Use this Report

1. Documenting the Benefits of Public Investment in LA's Water Use Efficiency Sector
2. Supporting Growth of Existing Water Sector Business; Targeting a Sector that LA Needs to Grow
3. Anticipating Workforce Development Needs for Water Sector and Occupational Clusters
4. Demonstrating that Investments in Water Use Efficiency Projects Support Real, not Over-Hyped "Green" Ones

Economic & Job Impacts of Water Use Efficiency Projects

Project Type	Impact Type	Direct Investment	Indirect Impacts	Induced Impacts	Total Impacts
Water Conservation	Sales	\$1,000,000	\$429,705	\$665,193	\$2,094,898
	Employment	9.1	3.0	4.5	16.6
Graywater Systems	Sales	\$1,000,000	\$457,068	\$453,894	\$1,910,962
	Employment	9.4	2.4	3.1	14.9
Stormwater	Sales	\$1,000,000	\$408,934	\$583,740	\$1,992,674
	Employment	6.6	2.4	4.0	13.1
Groundwater Mgmt. / Remd.	Sales	\$1,000,000	\$407,550	\$558,349	\$1,965,899
	Employment	6.8	2.3	3.8	12.8
Recycled Water	Sales	\$1,000,000	\$411,548	\$544,608	\$1,956,156
	Employment	6.6	2.3	3.7	12.6

\$1 million of direct investment stimulates a total of \$1.8 to \$2.1 million in local sales, and supports a total of 12.6 to 16.6 person-years of employment.

Industries in Los Angeles' Water Sector

Water Sector - First Tier

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Industries in Los Angeles' Water Sector

Water Sector - Second Tier

- Industries indirectly support Los Angeles' water sector by supplying goods and services to municipal water utilities as well as water and wastewater industries.
 - Professional Services (64,258 workers), average salary about \$100,000 per year.
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LA's Water Sector Establishments by Ownership Type

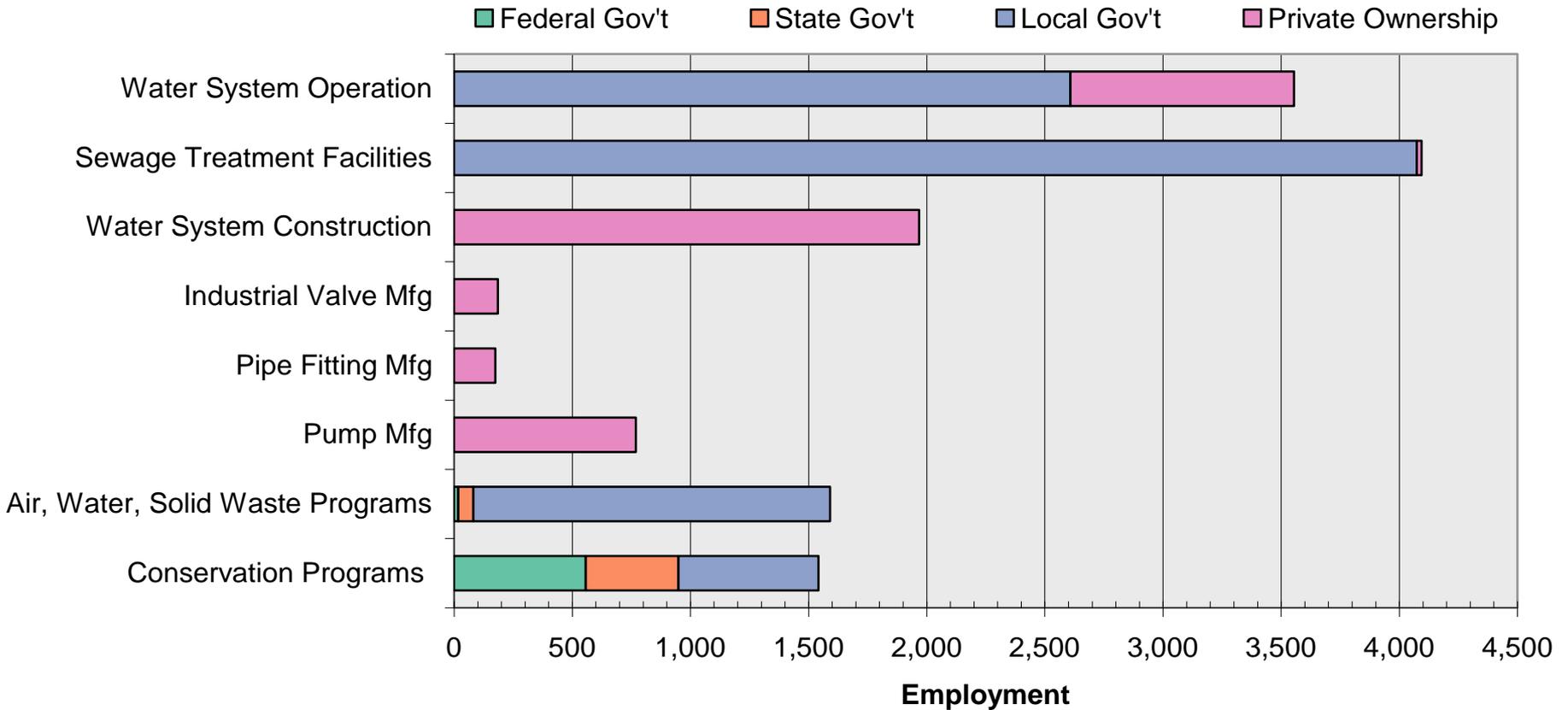


Chart of Induced Impacts: *Household Spending Patterns*



Types of Business involved in the Water Sector

- Aeration & Mixing Systems
- Chemicals/Bio-Chemicals
- Clarification, Sedimentation
- Cooling Towers, Heat Exchangers
- Corrosion Control
- Customer Information Systems
- Detectors, Monitors & Recorders
- Disinfection
- Electrical & Mechanical Equip.
- Filtration Equipment
- Greywater Irrigation Systems
- Industrial Water/Wastewater Treatment
- Lab, Sampling & Analytical
- Meters & Meter Reading Equipment
- Monitoring & Process Control Equip.
- Odor Control
- Engineering, Consulting & Construction Services
- Environmental Services
- Pipes, Fittings & Related Products
- Pipe Maintenance, Repair, Installation
- Pumps, Drives & Related Products
- Pump Related Services
- Safety Equipment
- Sampling & Analyzing Equip. & Instruction
- Sludge & Bio-Solids Handling
- Sludge Processing & Application
- Storm Water Tanks & Structures
- Valves & Related Products
- Wastewater Treatment Equipment

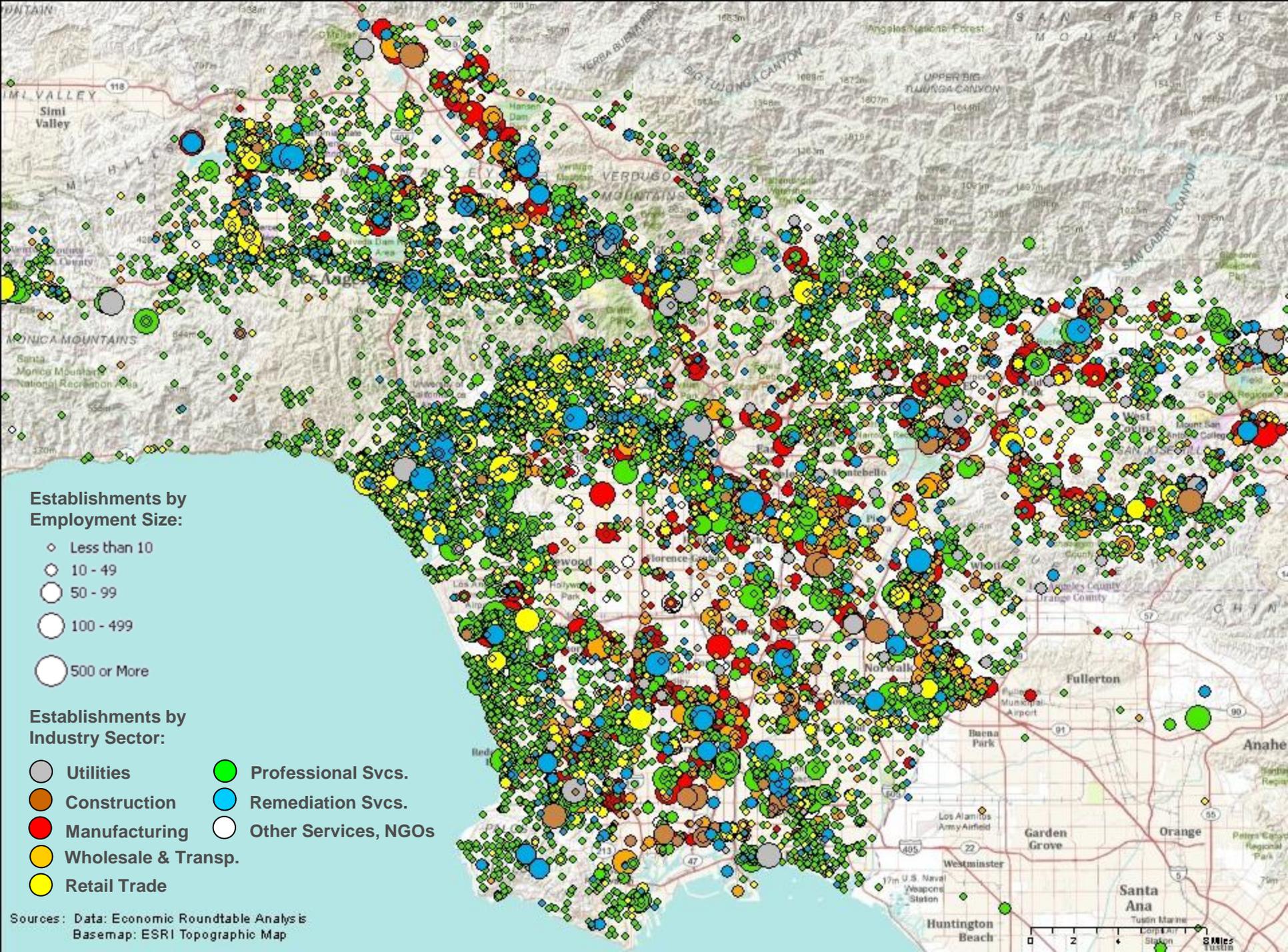


Water-Related Businesses in LA County

- 17,076 business establishments in LA Co. make products and services that have been used in water-related projects
- These businesses employed over 200,000 workers at the end of 2009.
- Their quarterly payroll was just under 4½ billion dollars.

	Employment		Quarterly Payroll	
	Sum	Avg.	Sum	Avg. per Establishment
Utilities	7,599	59	\$151.4 M	\$1,174,145
Construction	3,988	36	\$88.8 M	\$800,625
Manufacturing	63,560	39	\$1,272.7 M	\$784,663
Wholesale & Transp.	31,374	11	\$534.2 M	\$187,584
Retail Trade	9,588	7	\$186.6 M	\$142,070
Professional Services	85,094	9	\$2,082.7 M	\$208,170
Remediation Services	7,403	10	\$78.5 M	\$101,487
Other Services	2,484	9	\$24.3 M	\$89,276
Total	211,090	12	\$4,419.6 M	\$258,822

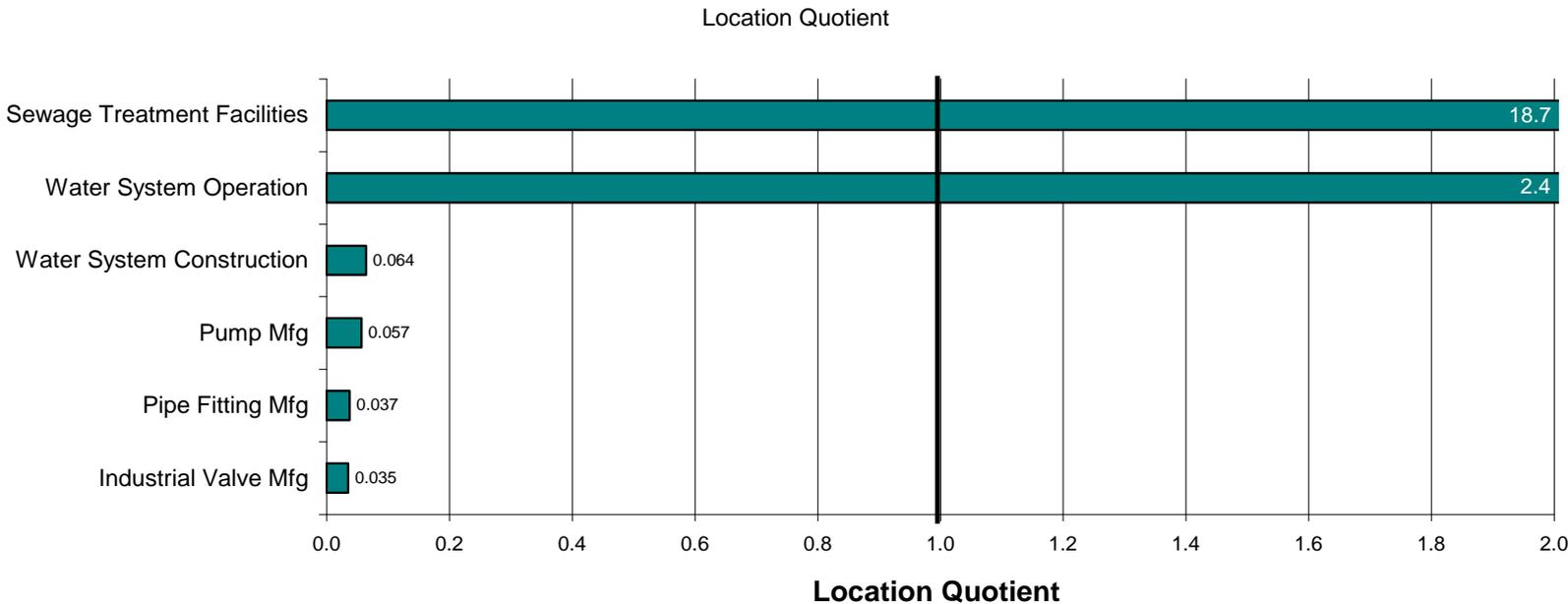




LA' Competitive Advantage in Water Sector Industries

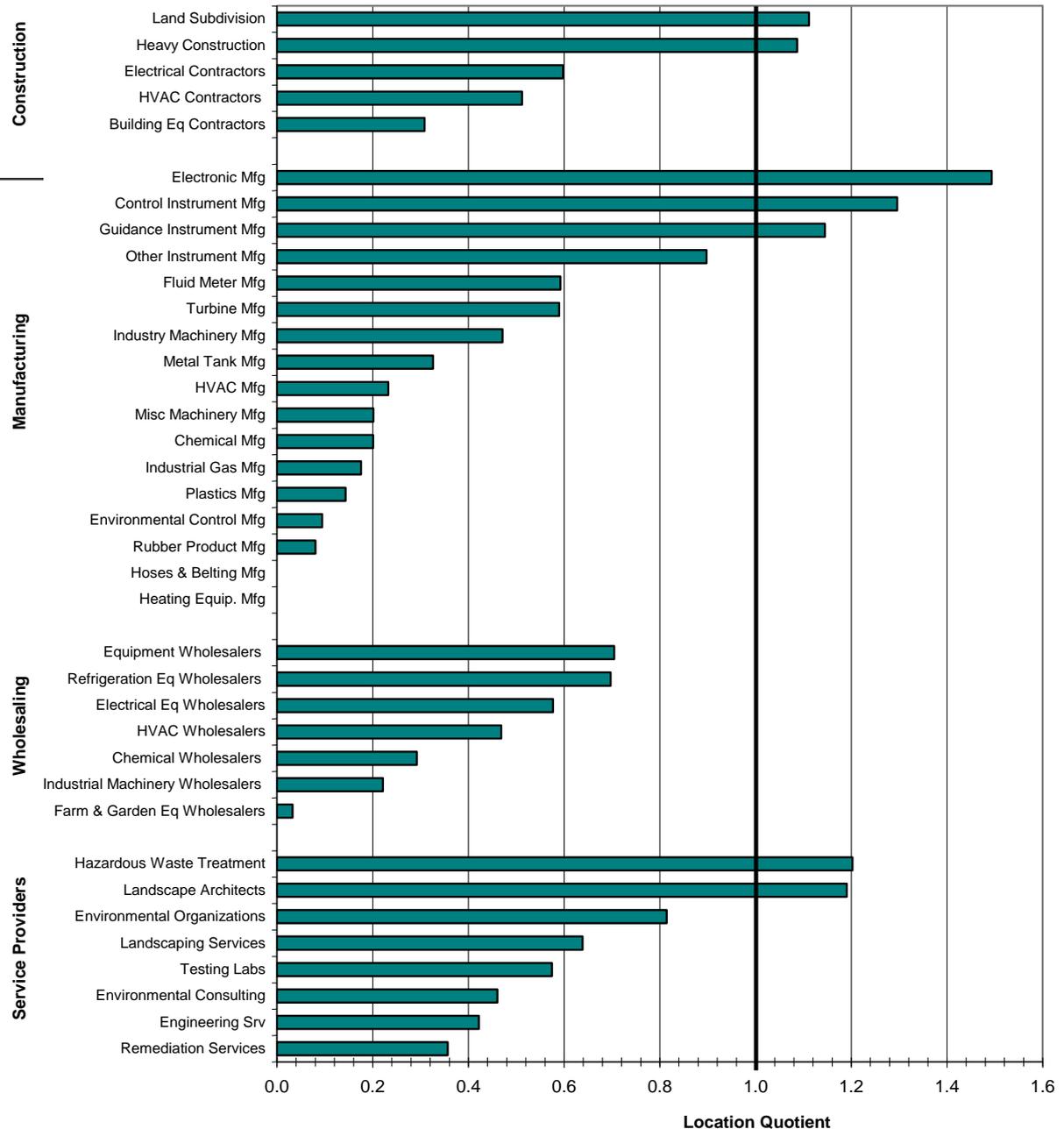
First Tier

- *Sewage Treatment Facilities and Water Supply and Irrigation Systems* industries have the Location Quotient
- Others are weakly represented locally

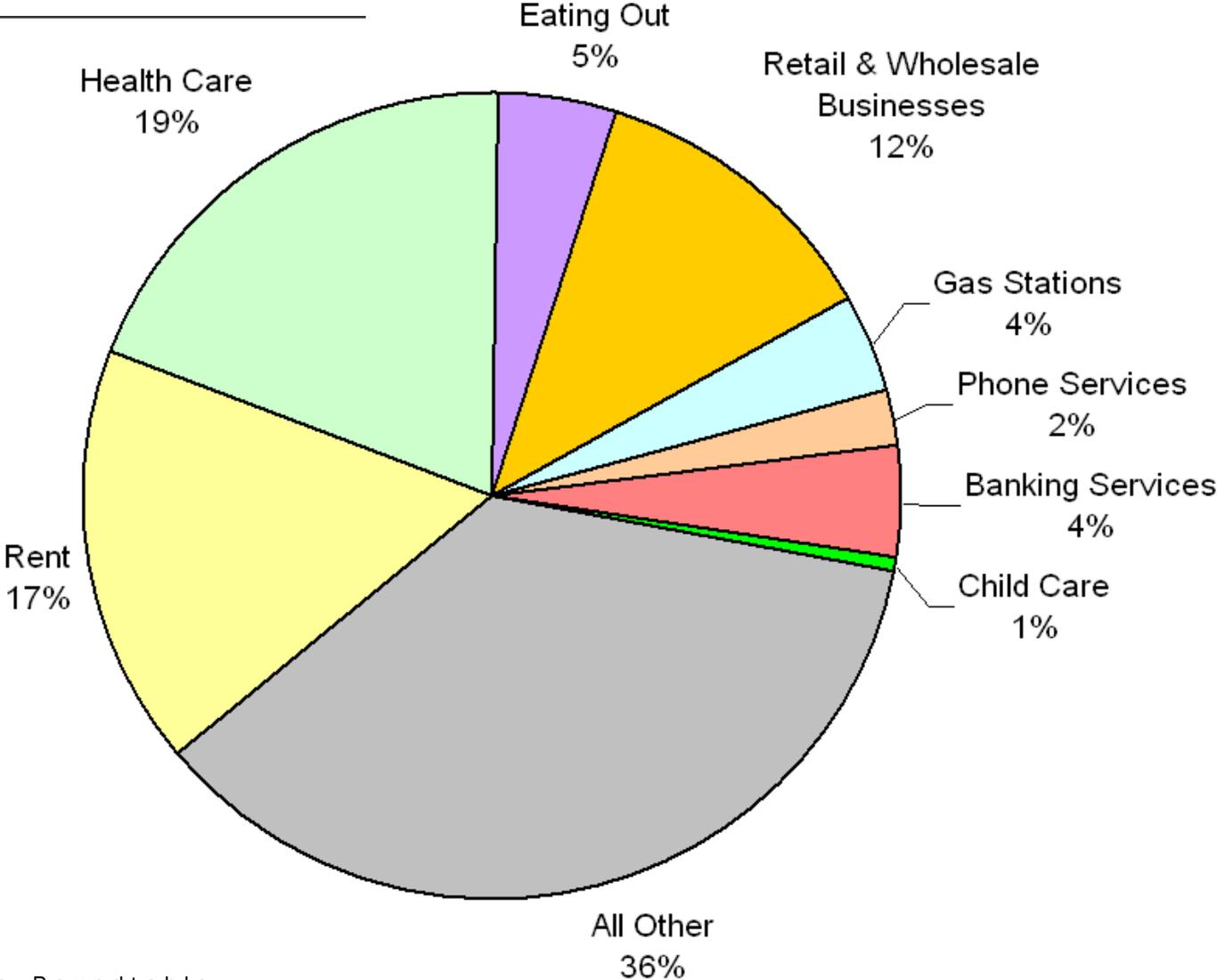


LA' Competitive Advantage in Water Sector Industries *Second Tier*

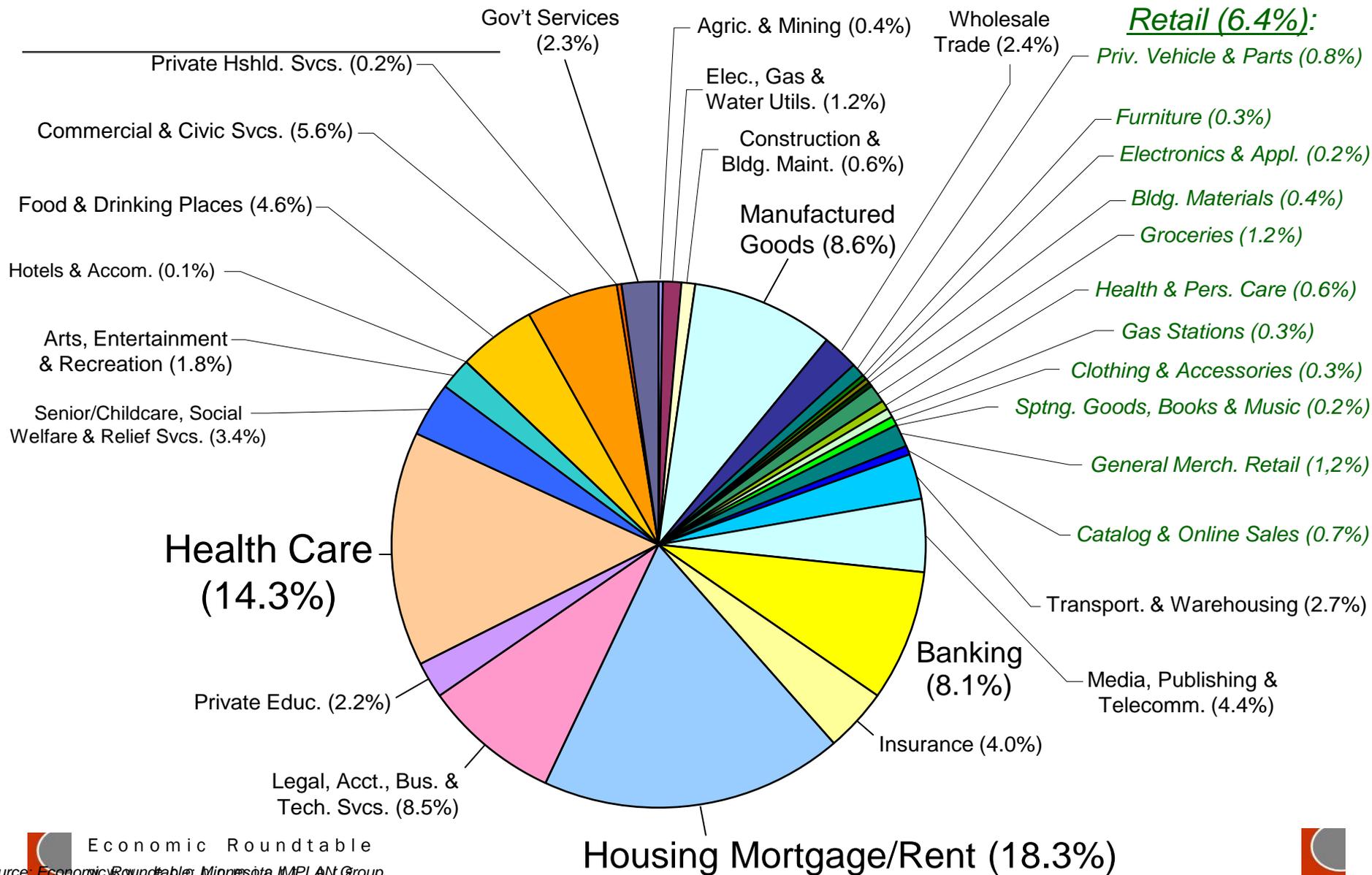
- Construction: Civil construction industries strongest
- Manufacturing: strongest in Electronic Components and Control Systems
- Wholesale: weaker compared to national average
- Services: Strengths in waste treatment and Landscape architecture.



Induced Impacts – Household Spending Patterns:



Household Spending Patterns:



Retail (6.4%):

- Priv. Vehicle & Parts (0.8%)*
- Furniture (0.3%)*
- Electronics & Appl. (0.2%)*
- Bldg. Materials (0.4%)*
- Groceries (1.2%)*
- Health & Pers. Care (0.6%)*
- Gas Stations (0.3%)*
- Clothing & Accessories (0.3%)*
- Sptng. Goods, Books & Music (0.2%)*
- General Merch. Retail (1.2%)*
- Catalog & Online Sales (0.7%)*



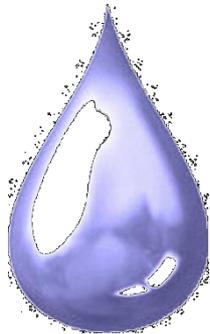
Budget Data obtained on Water Use Efficiency Projects



Water Sector Types We're Analyzing

Groundwater Management / Remediation

- Monitoring
- Recharge
- Hydraulic Containment
- Treatment (In-Situ, Pump and Treat, etc.)
- Distribution
- Transportation
- Well Development
- Soil Vapor Extraction



Storm Water

- Low-Impact Development (LID)
- Storage
- Bio-retention
- Detention
- Wetlands
- Sub-Surface Wetlands
- Swales
- Treatment
- Collection
- Stream Restoration
- Open Space Amenities
- Catch Basin Inserts/Screens
- Green Roofs
- Porous Pavement
- Green Streets/Alleys
- Land Retrofit
- Distribution



More Water Sector Types We're Analyzing

Grey Water

- Collection
- Treatment
- Storage
- Distribution
- Irrigation
- Indoor use

Recycled Water

- Collection
- Treatment
- Storage
- Distribution
- Irrigation
- Potable Use

Conservation

- Indoor Appliance/Fixture Retrofits
- Landscape Conversions
- Meter Installations/ sub-metering
- Irrigation
- Education Campaign



Budget Data on Water Use Efficiency Projects: Example

Project Name	Budget	Description
Marshland Enhancement	\$ 3,426,430	Construction Information: Restoration of vegetation and wildlife habitat value of the 17 acre freshwater JWPCP marshland that provides storm water treatment, flood control; Project includes educational and recreational facilities.

Wetland Research Associates	San Rafael	\$293,601
Jones and Stokes Associates	Los Angeles	\$2,420
LA County Sanitation Districts	Whittier	\$562,521
Environmental Construction, Inc.	Seattle, WA	\$1,747,676
Mockingbird Nurseries, Inc.	Riverside	\$35,156
Marina Landscape, Inc.	Anaheim	\$393,838
Bennett Landscape	Harbor City	\$150,660
Brea Canon Oil	Harbor City	\$97,165
Daily Journal Corporation	Los Angeles	\$3,270
Etc.



Budget Data on Water Use Efficiency Projects: *Storm Water*

Project Name	Budget	Description
Whittier Narrows Water Reclamation Plant – UltraViolet Disinfection System Facilities (<i>Waste Water</i>)	\$11,522,886	Address NDMA concentrations in tertiary effluent to allow continued groundwater recharge of 7,000 AFY (on average) for indirect potable reuse by converting from chloramination to UV disinfection



Budget Data on Water Use Efficiency Projects: *Storm Water*

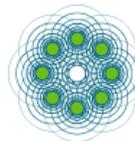
Project Name	Budget	Description
Imperial Highway Sunken Median Stormwater BMP	\$2,723,403	Install sunken infiltration trenches and grass buffer strips, with native vegetation and plants, along the Imperial Highway median.
Los Angeles Zoo Parking Lot	\$13,904,243	Demolish the main LA Zoo parking lot and construct a new parking lot with stormwater best management practices elements such as pervious asphalt, pervious concrete, and interlocking pavers.
Mar Vista Recreation Center Stormwater Best Management Practices	\$4,556,186	Construct a stormwater treatment system, which consists of a diversion structure, trash maintenance hole, pump stations, hydrodynamic separator, underground storage tank, chlorination/dechlorination system and appurtenant electrical system at Mar Vista Recreation Center Park
Peck Park Canyon Enhancement	\$6,190,000	installation of vegetated bio-swales, infiltration strips, stormwater catch basins, and a step-pool channel into Peck Park.
Westminster Dog Park Stormwater Best Management Practices	\$1,438,755	Install several Best Management Practices (BMP) elements, including a vegetated swale, shallow subdrain system and a stormwater treatment unit, to capture and treat site runoff from the Westminster Dog Park.
Westside Park Rainwater Irrigation	\$6,904,589	Provide pre-treatment and treatment of pollutants of concern, including bacteria, oil, grease, gasoline, suspended sediments and heavy metals, through filtration and a dry creek (bioretention basin).

Budget Data on Water Use Efficiency Projects: *Storm Water*

Project Name	Budget	Description
Riverdale Avenue Green Street Project	\$532,516	Demonstration project to establish future citywide infiltration standards for improving the water quality and reducing the amount of storm runoff from City streets.



Elmer Avenue Project	\$11,522,886	Elmer Ave, between Stagg St & Keswick St - Street widening, Curb and Gutter , sidewalk, infiltration basin, infiltration swale, planting & drip irrigation
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The Los Angeles and San Gabriel Rivers
WATERSHED COUNCIL

Budget Data on Water Use Efficiency Projects: *Storm Water*

Project Name	Budget	Description
Westchester Stormwater BMP Project	\$23,134,451	Stormwater treatment project designed to treat wet and dry weather runoff from Argo ditch and adjacent County storm drain to improve water quality at downstream Dockweiler Beach. Flow is tapped off using low flow diversions, debris is collected in a trash net system, storage tank provides settling prior to being pumped to an infiltration system.
Malibu Legacy Park	\$50,000,000	Multi-benefit regional facility that captures and stores more than 2 million gallons of stormwater and urban runoff per day. This captured runoff is treated, disinfected, and then used for irrigation. Project puts an entire segment of the City of Malibu into compliance with stringent Bacteria TMDL [Total Maximum Daily Loads] requirements.
Subsurface Infiltration Trenches Project	\$1,075,550	SMB 5-1: Stormwater treatment for six outfalls that drain to monitoring location SMB-5-1. An individual infiltration trench treats runoff from each of five outfalls. Each BMP consists of a pretreatment device, an in-line forebay, and an infiltration trench.
Polliwog Park Subsurface Infiltration Gallery	\$13,429,956	Diversion, conveyance pipes, a gross solids removal device, a forebay, and an infiltration gallery. Dry- and wet-weather flows are diverted from the existing storm drain into the forebay through the conveyance pipe and GSRD, then begin to infiltrate into the site soils.
Manhattan Heights Subsurface Infiltration Gallery	\$7,708,339	Diversion, conveyance pipes, a gross solids removal device (GSRD), forebay, and an infiltration gallery. Dry- and wet-weather flows are diverted from the existing storm drain and flow into the forebay through the conveyance pipe and GSRD and begin to infiltrate into site.

Budget Data on Water Use Efficiency Projects: *Storm Water*

Project Name	Budget	Description
Herondo Parking Subsurface Detention	\$2,768,076	Treats runoff from 3,000 acres and consists of a diversion, conveyance pipes, a gross solids removal device (GSRD), an underground detention facility, and a pump. Wet-weather flows are diverted from the existing storm drain and flow into the storage unit through the conveyance pipe and GSRD, then pumped to the Hermosa Beach infiltration trench.
Andrews Park Subsurface Storage, Use and Infiltration	\$6,860,601	Treats runoff from 122 acres and consists of a diversion, conveyance pipes, a gross solids removal device (GSRD), an irrigation storage tank, and an infiltration gallery. Dry- and wet-weather flows are diverted from the existing storm drain and into the irrigation storage tank through the conveyance pipe and GSRD. Flows fill the storage tank until ponding depths reach the elevation of an overflow pipe, then overflow into the infiltration gallery.
South Park Subsurface Infiltration Gallery	\$6,441,816	Treats runoff from 151 acres and consists of a diversion, conveyance pipes, a gross solids removal device (GSRD), forebay, and an infiltration gallery. Dry- and wet-weather flows are diverted from the existing storm drain and into the forebay through the conveyance pipe and GSRD, then infiltrate into site soils.



Budget Data on Water Use Efficiency Projects: *Recycled Water*

Project Name	Budget	Description
Anza Recycled Water Lateral, Phase II	\$609,141	Approximately 11,000 feet of purple recycled irrigation water pipeline that will save potable water for other purposes in the City of Torrance.
Mariposa Lateral	\$207,147	Approximately 1,500 feet of pipeline that will serve customers within the City of El Segundo.
CSU-Dominguez Hills Lateral Extension	\$280,198	Consists of a recycled water transmission pipeline within the City of Carson connecting to the end point of the Victoria Lateral and extending throughout the CSUDH campus. The Lateral serves over 98 million gallons of recycled water annually for irrigation use at multiple on-site facilities, including the recently-built Home Depot National Training Center
Corporate Campus El Segundo Lateral	\$97,692	The 4,000 feet of pipeline will carry recycled water for landscaping and other uses to allow the city to protect precious drinking water for El Segundo businesses and residents.
Torrance Booster Pump Station	\$76,683	The proposed booster pump station will serve over 20 customers at an ultimate capacity of 1,150 gallons per minute.
Anza Avenue Lateral, Phase I	\$562,765	The total length for Anza Ave Lateral Phase I is estimated to be 14,500 lineal feet of 8-, 6-, and 4-inch diameter recycled water pipeline.
Hyperion 2ndary Effluent Pump Station	\$35,277	This is located at the southwest corner of the Hyperion Waste Water Treatment Plant and provides the only source of water for West Basin's recycled water system.
Title 22 Distribution System	\$17,000	Title 22 Product Water Storage - consist of two 5.0 million gallon (MG) circular storage reservoirs. The reservoirs attenuate daily peaking of customer demands.

Budget Data on Water Use Efficiency Projects:

Water Conservation

Project Name	Budget	Description
Complete Restroom Retrofit Project	\$1,773,600	Installation of high-efficiency toilets, high-efficiency urinals and faucet sensors in non-residential settings.
Ocean Friendly Landscape Project	\$10,400,000	Installation of centralized irrigation controller systems and weather-based irrigation controllers at sites of greater than 1 acre, conducting landscape classes for residents, installing demonstration gardens in public sites (cities or schools), providing WBIC rebates and conducting a run-off study.
Re-circulate & Save Program (CII Incentive Program)	\$873,000	Provides businesses and facilities with incentives, resources, and technical assistance to install water efficient equipment.
Residential Indoor Plumbing Retrofit Kits	\$1,865,921	Implement 20,000 residential water and energy audits and device retrofits to 6th grade students.
MWD Conservation Proposal-Landscape Audits/Water Budgets/Equipment Incentives	\$109,640	Perform water audits, develop water budgets, and identify appropriate equipment incentives and upgrades, and provide information on training classes and "Smart" irrigation controllers.
Green Garden Program	\$607,100	This program involves four phases: pre-installation site surveys, Smart Irrigation Controller Exchange Events (including a 1-hour training session), a post-installation site visit, and water savings verification research.
Complete Restroom Retrofit Monitoring Program (ICP Program)	\$22,750	This program piggy-backs on the Restroom Retrofit Program by monitoring the water savings from self-closing faucets.
Water & Energy Efficiency Multi-Family Program (Enhanced Conservation Program)	\$836,500	Direct installation of both water and energy efficiency devices in multi-family dwellings. Replacement includes: installation of High-Efficiency Toilets (1.28 gallons per flush), installation of 9,000 13Watt twist Compact Fluorescent Light bulbs (CFLs);

Data We've Received Thus Far:

Water Conservation

Project Name	Budget	Description
Food Facilities Audit, Incentive and Training Program (Enhanced Conservation Program)	\$128,800	Targets large to medium sized food service facilities to market water efficient equipment to replace older existing equipment and promote water saving training.
Local Water Conservation Plans for Water Purveyors	\$223,000	These plans are developed to help water retailers comply with SB 7x7 and their Best Management Practices by developing and planning for programs that meet the targets.
High-Efficiency Toilet Distributions	\$301,500	In FY 2010-11, West Basin will provide 2,000 free HETs to residents through 5 one-day events.



West Basin Municipal Water District
 17140 S. Avalon Blvd., Suite 210
 Carson, CA 90746
www.westbasin.org

Casa Dominguez	TBD	Graywater irrigation system, situated in affordable housing development
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Budget Data on Water Use Efficiency Projects: *Projects Outside LA County*

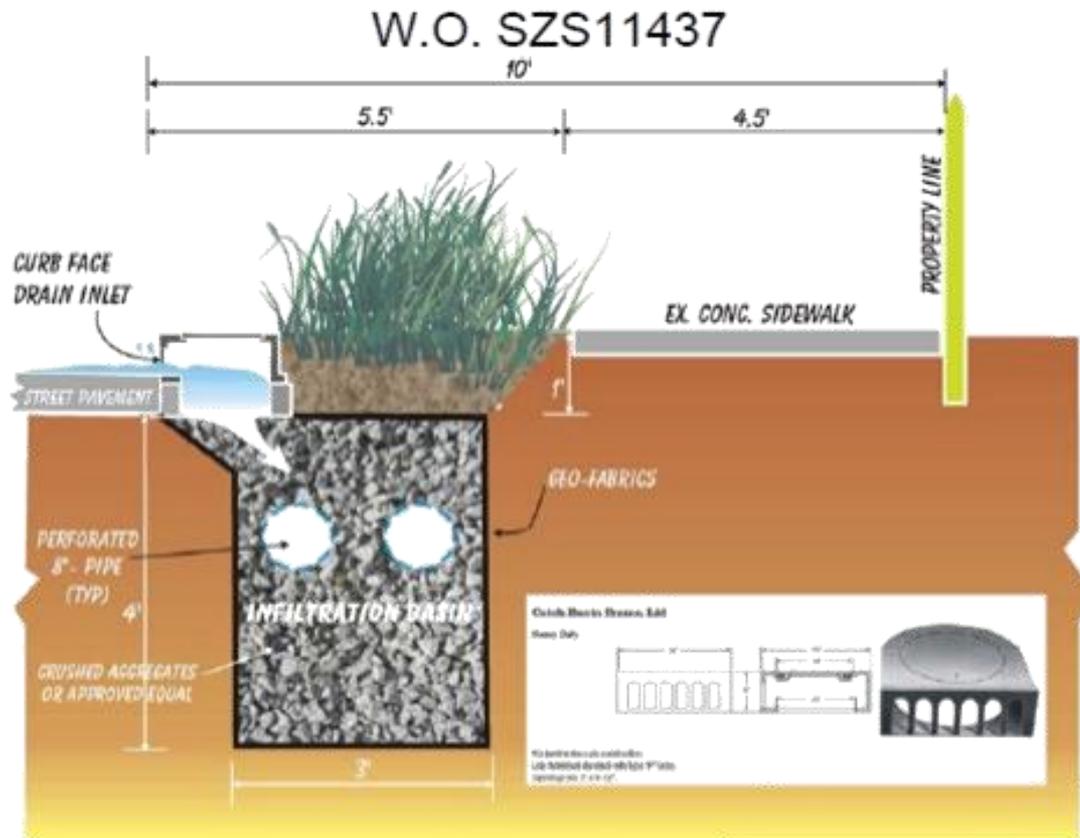
Project Name	Budget	Description
Rowland Water District: Arenth Reclaimed Water Pipeline	\$5,047,716	Recycled Water
Fullerton Road reclaimed Pipeline	\$4,956,233	Recycled Water
Agesong – Bayside Park Emeryville, CA	TBD	Modular Green Roofs, Rooftop Garden, Living Roofs, Sustainable Roofs, Vegetated Roofs

Example of IMPLAN Input-Output Model:
*Impacts of the Riverdale Avenue
Stormwater Retention Project*



Example: Job Impacts of a recent Water Project

Riverdale Avenue Green Street Project



Prepared by:

Stormwater Group
Bureau of Engineering



Job impacts example

1. Initial data shared by LA City
2. Rec'd: Project overview, Cost breakdown
3. What kinds of businesses carried out the project?
 - a) Prime: Construction contractor
 - b) Subcontracted out: Landscaping
 - c) Planning work: City BoE staff

City Engineer's Estimate

City of Los Angeles - Department of Public Works - Bureau of Engineering

RIVERDALE AVENUE GREEN STREET PROJECT

W.O.No. SZS11437

DETAILED RESULTS				City Engineer's Estimate		Mike Pritch & Sons, Inc.	
ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	ITEM TOTAL	UNIT PRICE	ITEM TOTAL
1	Mobilization (GR-01292 & 01721)	LS			\$ 15,000.00		\$ 6,000.00
2	Traffic Control	LS			\$ 5,000.00		\$ 1,000.00
3	Install Project Signage per Plan L-404 and Plan R-2, NTC #15	EA	1	\$ 2,500.00	\$ 2,500.00	\$ 600.00	\$ 600.00
4	Install Project Signs per Std. Plan S-791-1 (GR-01581)	EA	2	\$ 1,500.00	\$ 3,000.00	\$ 500.00	\$ 1,000.00
5	Allowance for Additional Root Pruning per Plan R-2, NTC #14 not indicated on plans (GR-01212)	LS			\$ 3,000.00		\$ 3,000.00
6	Allowance for the Payments of Water Service (GR-01212)	LS			\$ 5,000.00		\$ 5,000.00
7	Allowance for Differing Site Conditions (GR-01212 & 01253)	LS			\$ 15,000.00		\$ 15,000.00
8	Allowance for Neighborhood Impact Mitigation Including Seed Purchase for the Community Garden (GR-01212)	LS			\$ 5,000.00		\$ 5,000.00
9	Unclassified Excavation & Haul Away for Infiltration Basin	CY	510	\$ 50.00	\$ 25,500.00	\$ 44.00	\$ 22,440.00
10	Crushed Aggregate (including Installation) for Infiltration Basin	CY	510	\$ 50.00	\$ 25,500.00	\$ 51.00	\$ 26,010.00
11	Shoring of Open Excavation, Depth 5'-7'	LF	910	\$ 5.25	\$ 4,777.50	\$ 10.00	\$ 9,100.00
12	Install Curbside Grating Catch Basin (CB) per Plan C-3 & C-4, Detail A7	EA	2	\$ 6,500.00	\$ 13,000.00	\$ 5,100.00	\$ 10,200.00
13	Install Catch basin per Plan C-3 & C-4, Detail A12	EA	2	\$ 6,500.00	\$ 13,000.00	\$ 5,100.00	\$ 10,200.00
14	Side Opening Catch Basin & Local Depression (W=7', V=4') per Plan C-3 & C-4, Detail A1	EA	2	\$ 10,000.00	\$ 20,000.00	\$ 5,900.00	\$ 11,800.00
15	Outlet Structure per Standard (Std) Plan S-323-1	EA	2	\$ 8,000.00	\$ 16,000.00	\$ 6,100.00	\$ 12,200.00
16	Remove & Haul Away Existing Concrete Driveway & Gutter at 2404 & 2408 Riverdale Ave	SF	120	\$ 3.00	\$ 360.00	\$ 8.00	\$ 960.00
17	Construct Concrete Driveway & Gutter at 2404 & 2408 Riverdale Ave per Std Plan S-440-3, Case I	SF	120	\$ 12.00	\$ 1,440.00	\$ 9.00	\$ 1,080.00
18	4" CMB for Driveway & Gutter	SF	120	\$ 2.00	\$ 240.00	\$ 2.25	\$ 270.00
19	Remove & Haul Away Existing Concrete Sidewalk	SF	3300	\$ 2.00	\$ 6,600.00	\$ 5.00	\$ 16,500.00
20	Construct 3" thick Concrete Sidewalk	SF	3300	\$ 5.00	\$ 16,500.00	\$ 4.35	\$ 14,355.00
21	4" CMB for Sidewalk	SF	3300	\$ 2.00	\$ 6,600.00	\$ 2.50	\$ 8,250.00
22	Install 8" dia. Perforated Schedule 80 PVC Pipe	LF	901	\$ 45.00	\$ 40,545.00	\$ 118.37	\$ 106,651.37
23	Hand Mining (Excavation) and Install 8" dia. Schedule 80 PVC Pipe	LF	30	\$ 500.00	\$ 15,000.00	\$ 50.00	\$ 1,500.00
24	Install Manhole Wall per Plan C-3, Detail A10	EA	1	\$ 7,500.00	\$ 7,500.00	\$ 1,000.00	\$ 1,000.00

Industries of Employment

- ERT looks up the NAICS code of companies doing the work...

The screenshot shows the Manta website interface. At the top, there is a search bar with the text "Search more than 60 million companies:" and a "Search" button. To the right of the search bar are links for "Browse Companies", "U.S.", "Worldwide", and "Business". Below the search bar, there is a breadcrumb trail: "U.S. ~ Baldwin Park, CA ~ Building & Construction ~ Water, Sewer, Pipeline, and Communications and Power Line Construction".

The main content area is titled "Company Profile" and includes tabs for "Reports", "Map", and "Web Results". The company name is "Mike Prlich & Sons". Below the name, the address is "5103 Elton Street, Baldwin Park, CA 91706-1811" with a "map" link. The phone number is "(626) 813-1700" and the website information is "Information not found". There is a yellow button that says "Is this your company? Claim This Profile".

Below the company information, there is a section titled "About Mike Prlich & Sons" with a link to "Claim This Profile". The text describes the company as a private company categorized under Sewer Contractors, located in Baldwin Park, CA, with an annual revenue of 1,300,000 and approximately 10 employees.

There are two tables: "Mike Prlich & Sons Business Information" and "Business Categories".

Mike Prlich & Sons Business Information	
Location Type	Single Location
Annual Sales (Estimated)	1,300,000
Employees (Estimated)	10
SIC Code	1623, Water, Sewer, Pipeline, and Communications and Power Line Construction
NAICS Code	237110, Water and Sewer Line and Related Structures Construction
Products, Services and Brands	Information not found
State of Incorporation	Information not found
Years in Business	55

Business Categories
Sewer line construction in Baldwin Park, CA
Water/Sewer/Utility Construction
Water and Sewer Line and Related Structures Construction
View newly formed U.S. businesses

There is also a "Company Contacts" section with a link to "Claim This Profile". It shows a contact card for "Mike Prlich Jr Partner" with a "Search for more contacts" link.

Impacts of Graywater Systems in LA Homes

- Represents a Direct Investment of \$2,197 per Household System
- Each Graywater System Consists of an Inside Plumbing and Outside Landscaping Installations
- Based on 5,439 New Residential Properties Built in LA County Could Support Investments up to ~\$11.9 M Annually

Data needed for IMPLAN Modeling

	Budget	NAICS	Time Period
Prime: Mike Prlich & Sons, Inc. construction	\$343,034	237110, Water and Sewer Line and Related Structures Construction	<1 Year
Subcontracted out: Landscaping	\$42,847	561730 Landscaping Services	<1 Year
Planning work: City BoE staff	\$146,635	925120 Administration of Urban Planning and Community Development	<1 Year

Results: Job Impacts of Project

	Direct Employment Supported	Indirect Employment Supported	Induced Employment Supported
Prime: Mike Prlich & Sons, Inc. construction <i>(Budget: \$343,034)</i>	2.0 jobs/yr.	0.6 jobs/yr.	0.7 jobs/yr.
Subcontracted out: Landscaping <i>(Budget: \$42,847)</i>	0.66 jobs/yr.	0.049 jobs/yr.	0.089 jobs/yr.
Planning work: City BoE staff <i>(Budget: \$146,635)</i>	0.462 jobs/yr.	0.267 jobs/yr.	0.258 jobs/yr.
Total:	3.1 jobs/yr.	0.92 jobs/yr.	1.05 jobs/yr.

Other Results of Input-Output Model

- ~~Output – additional near-term and long-term economic activity stimulated.~~
- Output per job – annual sales required to create one job.
- Household spending of workers' families
- Local vs. Non-Local Impacts
- Taxes generated
- Network of supplier industries
- Two phases of projects:
 - Near-term construction impacts
 - Long-term system operation and maintenance impacts



Occupation Clusters in Los Angeles' Water Sector

Occupational Cluster 1: Building & Grounds, Forest & Conservation Workers

	Total Employment	Entry-Level Wage	Average Wage
Nursery Workers	1,200	\$8.32	\$9.68
Forest & Conservation Workers	170	\$8.04	\$9.75
Landscaping & Grounds-keeping Workers	18,380	\$9.01	\$13.65
Tree Trimmers & Pruners	1,820	\$10.47	\$15.80
Managers of Horticultural Workers	130	\$11.44	\$22.50
Managers of Landscaping, Lawn Service, & Grounds-keeping Workers	1,890	\$12.82	\$24.27

Building & Grounds, Forest & Conservation workers

Occupational Cluster Detail 1	Nursery Workers	Forest & Conservation Workers	Landscaping & Grounds- keeping Workers	Tree Trimmers & Pruners	Mgrs. of Horticultural Workers	Mgrs. of Landscaping, Lawn Service, & Grounds- keeping Workers
Occupation Code (O*NET)	45-2092.01	45-4011.00	37-3011.00	37-3013.00	45-1011.07	37-1012.00
Total Employment	1,200	170	18,380	1,820	130	1,890
Entry-Level Wage	\$8.32	\$8.04	\$9.01	\$10.47	\$11.44	\$12.82
Average Wage	\$9.68	\$9.75	\$13.65	\$15.80	\$22.50	\$24.27
Jobs per 1,000	0.315	0.045	4.815	0.477	0.035	0.496
Location Quotient	0.175	0.813	0.738	1.615	0.228	0.626
Education (Columns add up to 100%)						
Less than a H.S. Diploma	23%	8%	52%	42%	20%	0%
High School Diploma or GED	57%	21%	26%	46%	45%	55%
Post-Secondary Certificate	1%	2%	16%	1%	1%	3%
Some College or AA Degree	6%	22%	2%	10%	16%	40%
Bachelor's (4 yr.) Degree	0%	36%	4%	0%	18%	1%
Graduate Certificate or Degree	13%	11%	0%	1%	0%	0%
Related Work Experience (Columns add up to 100%)						
None	46%	9%	37%	23%	39%	4%
Up through 6 months	29%	0%	14%	26%	25%	12%
7 to 12 months	16%	8%	16%	16%	2%	2%
More than 1 year	9%	82%	33%	35%	34%	82%

Building & Grounds, Forest & Conservation workers

Occupational Cluster Detail 2	Nursery Workers	Forest & Conservation Workers	Landscaping & Grounds- keeping Workers	Tree Trimmers & Pruners	Mgrs. of Horticultural Workers	Mgrs. of Landscaping, Lawn Service, & Grounds- keeping Workers
	Skill Level (Scale 0-100; highest level = 100)					
Reading Comprehension	36	39	32	37	54	46
Active Listening	39	41	36	41	50	46
Writing	34	36	30	36	46	46
Speaking	34	37	36	37	50	52
Mathematics	27	29	18	21	43	36
Science	13	29	13	20	21	5
Critical Thinking	36	39	32	41	48	50
Active Learning	32	32	25	30	43	45
Instructing	36	34	27	43	45	43
Complex Problem Solving	34	37	34	39	46	46
Installation	0	0	0	0	5	4
Programming	0	13	0	0	11	7
Repairing	14	23	27	30	37	32
Quality Control Analysis	30	34	32	39	43	39
Judgment and Decision Making	37	39	36	41	50	48
Systems Analysis	25	34	27	23	45	37
Time Management	34	37	34	45	52	45

Occupational Cluster 2:

Maintenance and Repair Workers

	Total Employment	Entry-Level Wage	Average Wage
Helpers: Installation, Maintenance, & Repair	3,930	\$8.84	\$14.87
Electric Motor, Power Tool, & Related Repairers	490	\$9.40	\$20.89
Heating & Air Conditioning Mechanics & Installers	3,920	\$12.28	\$23.08
Electrical & Electronics Repairers, Commercial & Industrial Equipment	1,820	\$15.75	\$25.84
Control & Valve Installers & Repairers, Except Mechanical Door	1,190	\$15.46	\$27.79
Electrical Power-Line Installers & Repairers	1,130	\$16.39	\$34.11

Occupational Cluster 3: Construction Workers

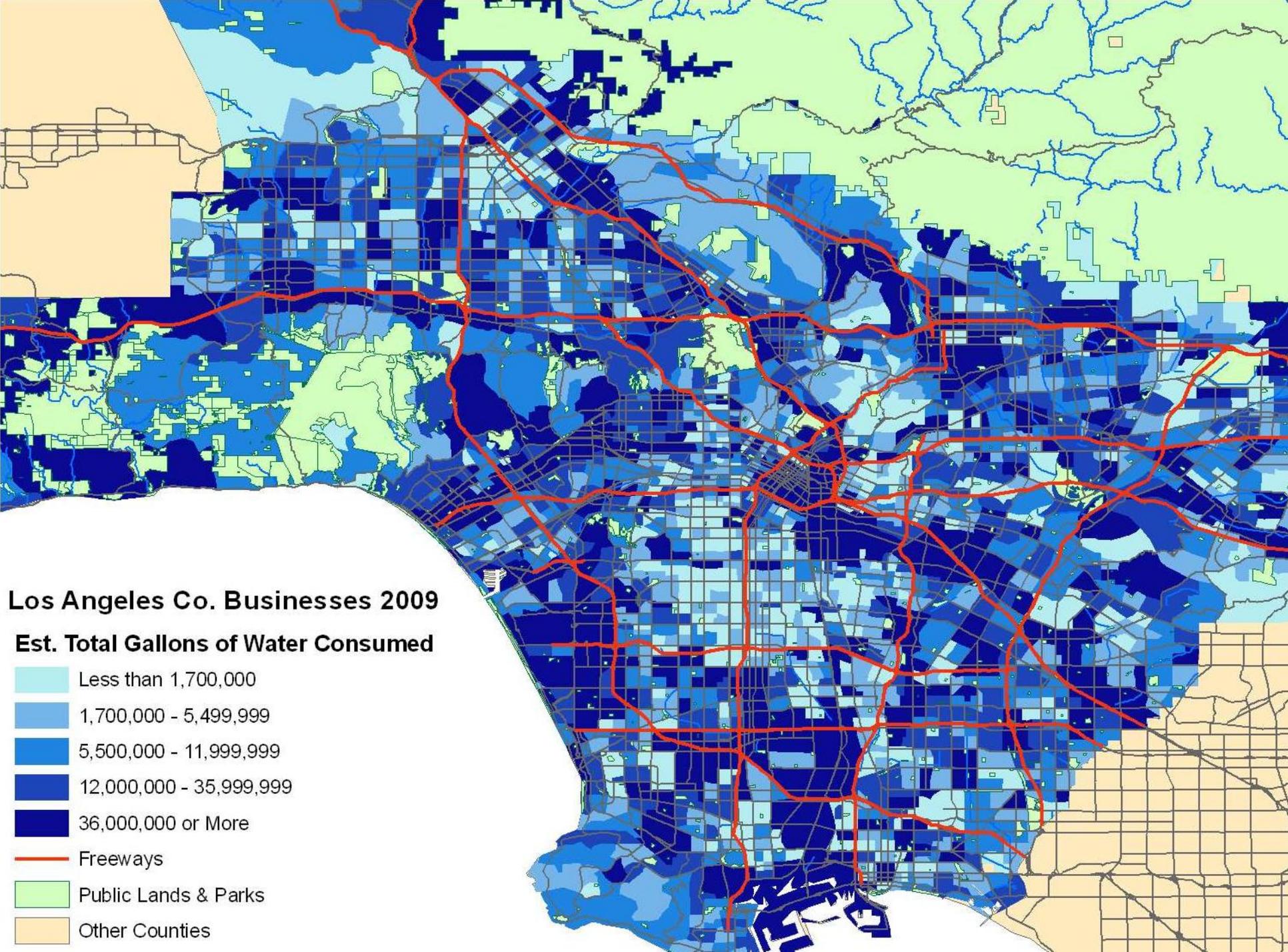
	Total Employment	Entry-Level Wage	Average Wage
Helpers: Roofers	430	\$10.18	\$12.58
Septic Tank Servicers & Sewer Pipe Cleaners	370	\$12.23	\$17.07
Solar Photovoltaic Installers	110	\$9.59	\$18.85
Helpers: Electricians	1,300	\$11.96	\$19.09
Construction Laborers	20,730	\$10.62	\$19.27
Segmental Pavers	150	\$12.90	\$19.89
Roofers	1,580	\$13.76	\$21.83
Pipelayers	370	\$13.10	\$22.62
Cement Masons & Concrete Finishers	2,700	\$11.90	\$23.24
Structural Iron & Steel Workers	1,760	\$9.52	\$24.15
Earth Drillers, Except Oil & Gas	870	\$15.77	\$24.43
Carpenters	10,810	\$13.25	\$24.50
Electricians	9,120	\$14.34	\$27.84
Pipe Fitters & Steamfitters	6,630	\$14.18	\$28.26
Plumbers	6,630	\$14.18	\$28.26
Mgrs. of Construction Trades Workers	7,660	\$20.80	\$35.04

Occupational Cluster 4: Architecture and Engineering Workers

	Total Employment	Entry-Level Wage	Average Wage
Environmental Engineering Technicians	570	\$16.26	\$25.52
Electronic Drafters (CAD)	560	\$16.45	\$28.87
Mapping Technicians (GIS)	300	\$17.99	\$29.35
Landscape Architects	260	\$20.52	\$32.68
Environmental Engineers	1,210	\$24.03	\$40.05
Water/Wastewater Engineers	7,120	\$28.94	\$43.64

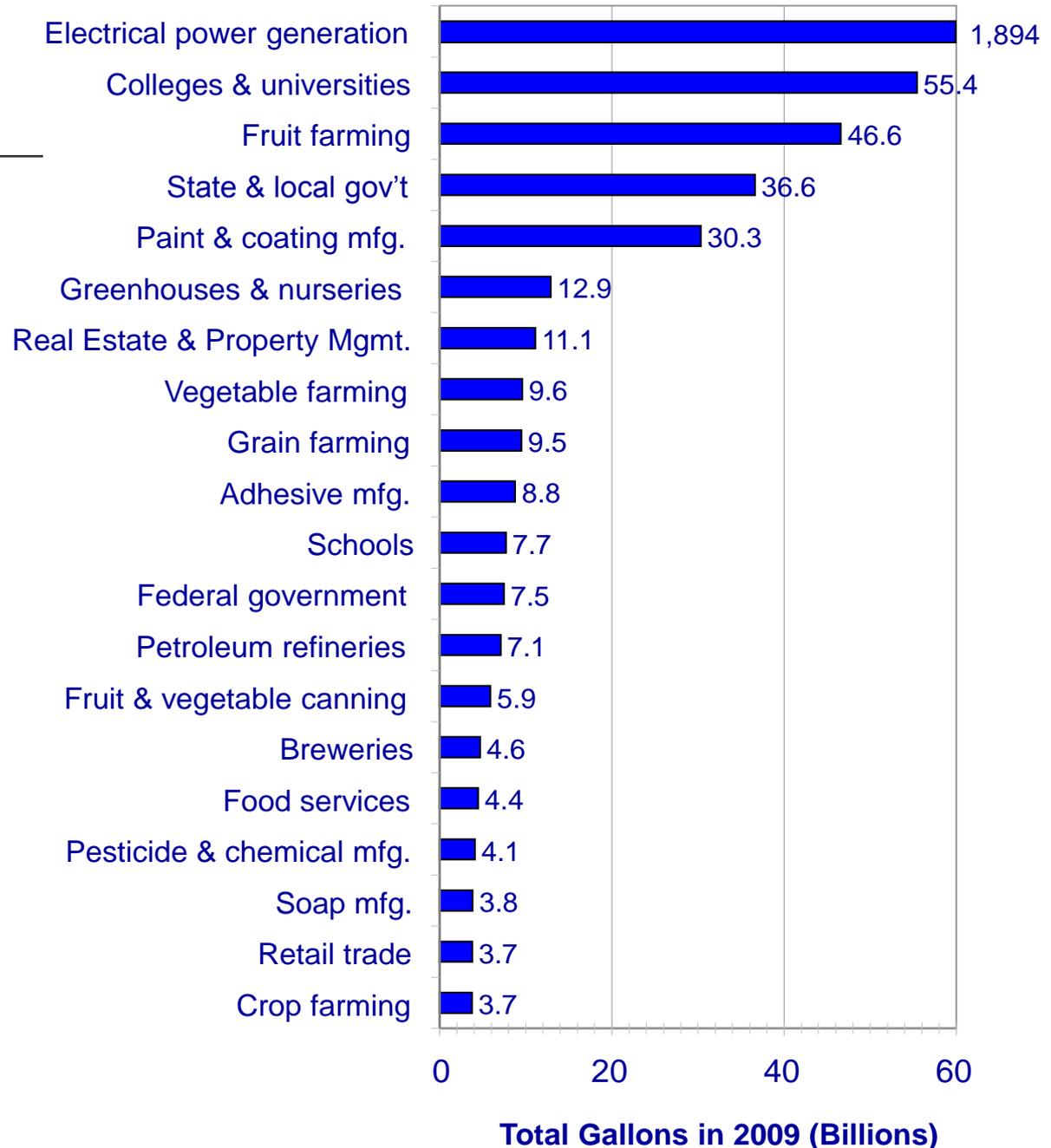
- *"Professional" occupations that plan and problem-solve how to achieve water use efficiency*
- *Demand higher education and related work experience*

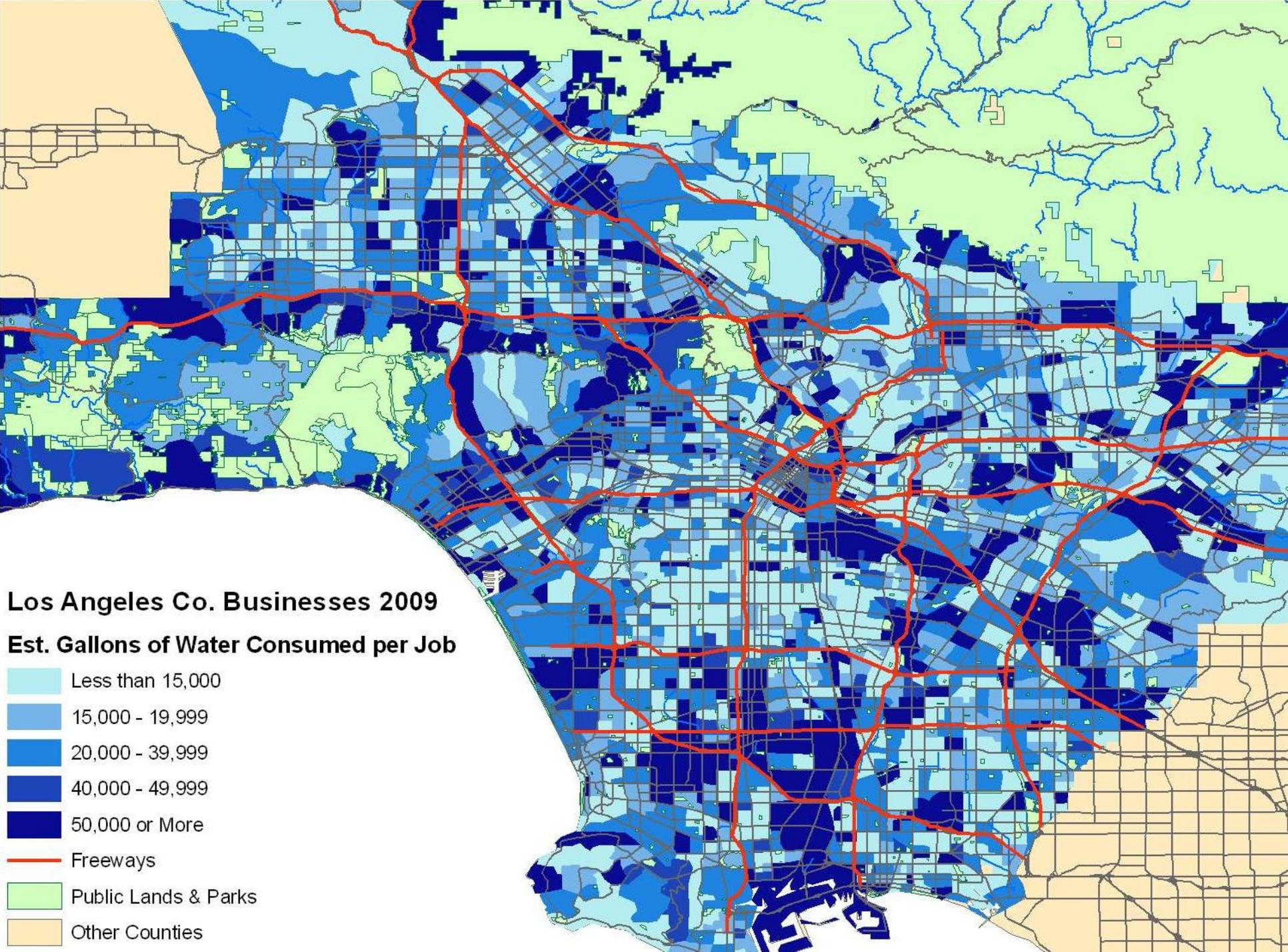
Commercial Water Consumption in LA: Baseline Estimates by Industry



Top 20: Industries in LA County by Total Annual Water Consumption

- Water-intensive industrial processes
- Landscaped sites
- Residential facilities



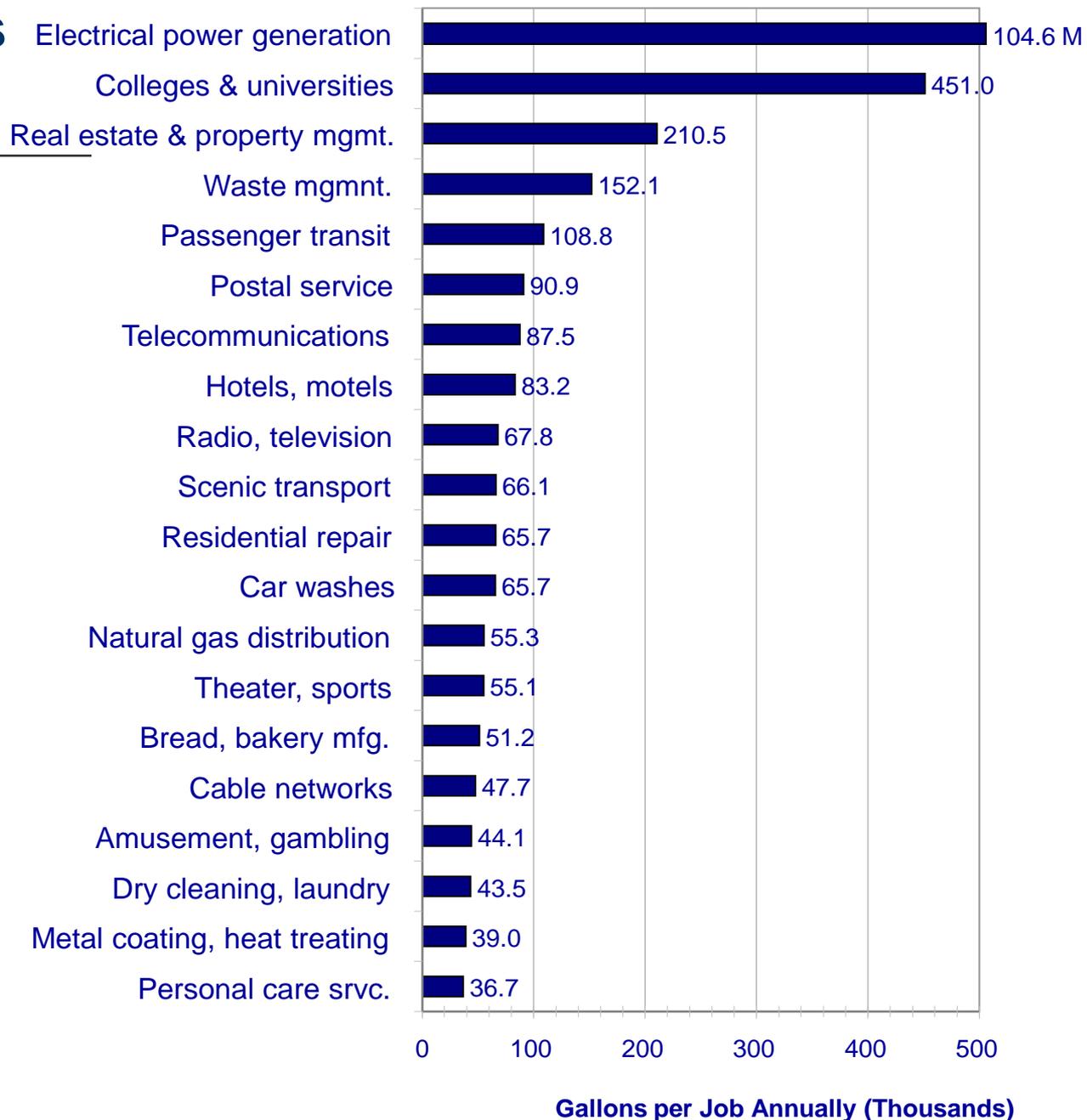


Los Angeles Co. Businesses 2009
Est. Gallons of Water Consumed per Job

- Less than 15,000
- 15,000 - 19,999
- 20,000 - 39,999
- 40,000 - 49,999
- 50,000 or More
- Freeways
- Public Lands & Parks
- Other Counties

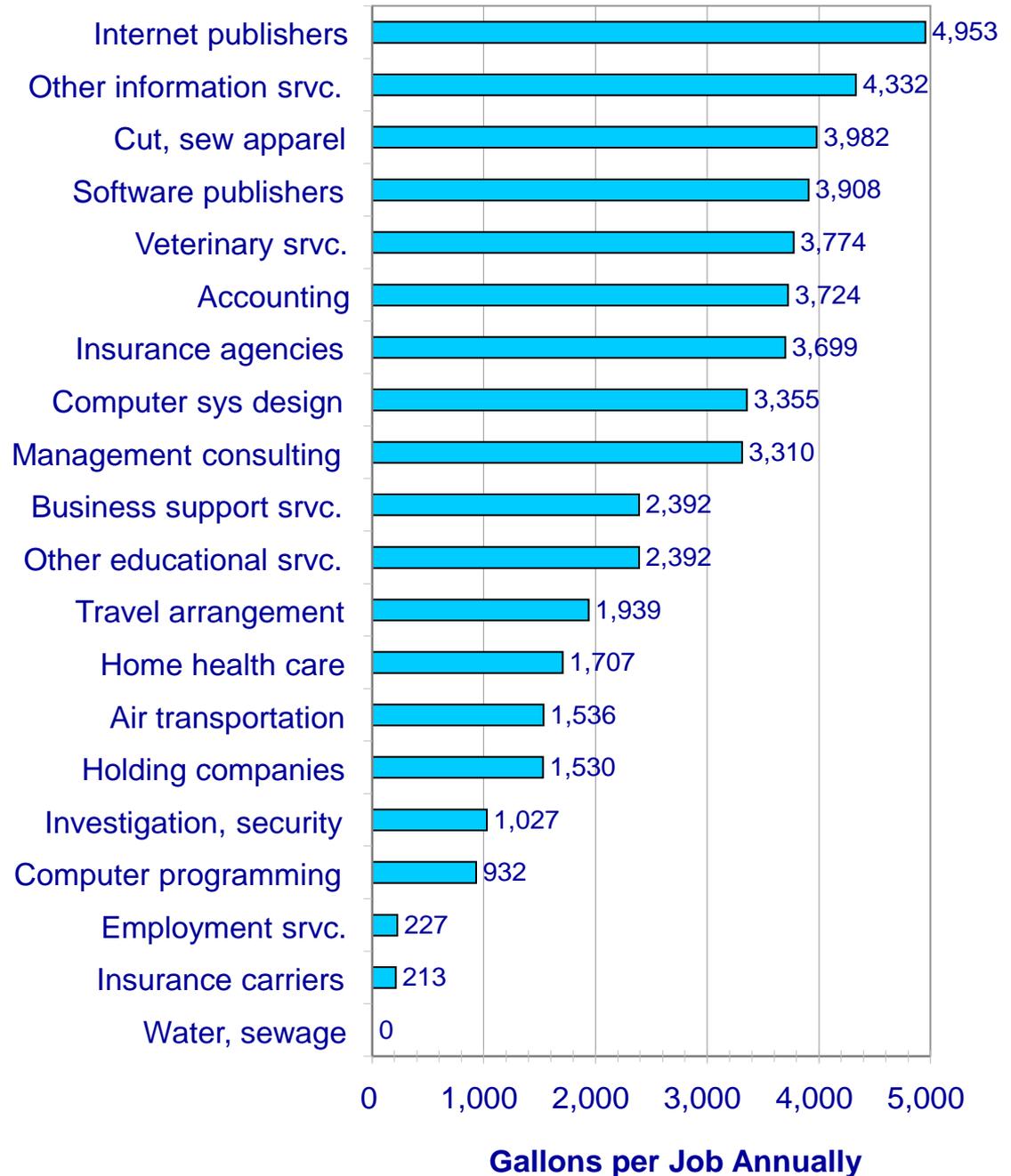
Top 20: Industries in LA County by Annual Water Consumption per Job

- Water-intensive industrial processes
- Landscaped sites
- Residential facilities



Bottom 20: Industries in LA Co. with the Least Annual Water Consumption per Job

- Office work
- Service industries
- Industrial processes with little or no water consumed



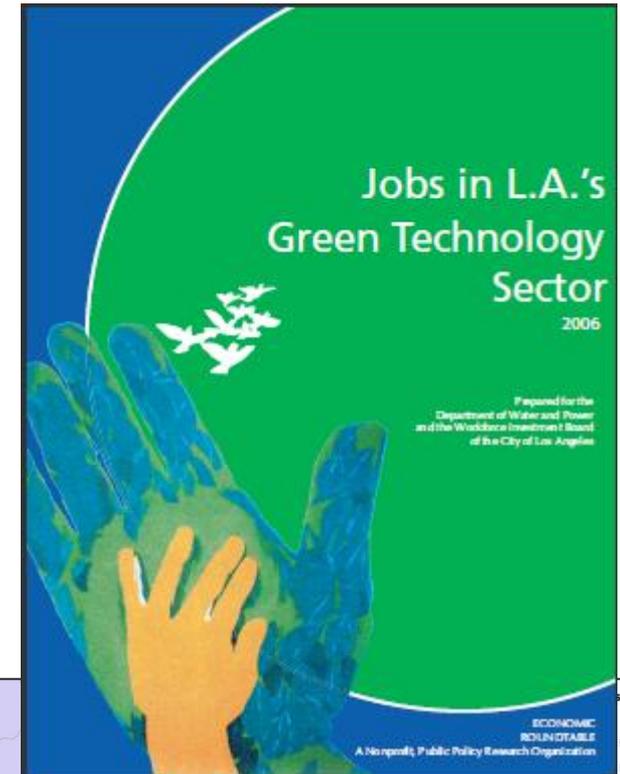
About the Economic Roundtable



Example of Past Work

“Jobs in LA's Green Technology Sector”

- Documenting number and types of LA's 'green businesses'
- Calculate “Ripple-Effects” of Green Tech companies in LA's Economy
- Identify Occupations in Green Tech Industries and Job Opportunities for L.A. Residents:
 - Wages, Entry-Level Jobs
 - Skill Profiles of Occupations
 - Demographics of Workers in Green Tech Jobs
- Target Green Tech Industries providing the Greatest Economic Benefits
 - Growth trends
 - Wages



Industry Sectors of Establishments Carrying Out LA's Recent Stormwater Projects

IMPLAN Sector Code	Industry Sector Description	Direct Expenditures in LA Co.	Total Direct Expenditures	Percent Local
36	Construction of other new nonresidential structures	\$65,423,576	\$75,313,817	87%
369	Architectural, engineering, and related services	\$41,179,355	\$44,612,550	92%
34	Construction of new commercial and health care structures	\$6,904,589	\$16,270,218	42%
432	Other state and local government enterprises	\$3,187,638	\$4,076,378	78%
376	Scientific research and development services	\$3,112,412	\$3,286,013	95%
171	Steel product manufacturing from purchased steel	\$880,939	\$880,939	100%
166	Cut stone and stone product manufacturing	\$709,196	\$3,249,153	22%
388	Services to buildings and dwellings	\$361,042	\$1,518,866	24%
424	Grantmaking, giving, and social advocacy organizations	\$213,463	\$332,336	64%
20	Extraction of oil and natural gas	\$97,165	\$97,165	100%
233	Fluid power process machinery manufacturing	\$70,000	\$70,000	100%
319	Wholesale trade businesses	\$66,307	\$129,651	51%
323	Retail Stores - Building material and garden supply	\$29,178	\$64,715	45%
187	Ornamental and architectural metal products manufacturing	\$24,000	\$34,396	70%
374	Management, scientific, and technical consulting services	\$5,500	\$5,500	100%
341	Newspaper publishers	\$3,270	\$3,270	100%
	(Other non-local project expenditures)	\$0	\$15,793,653	0%
Total		\$122,267,631	\$165,738,620	74%

Indirect & Induced Impacts of Stormwater Projects in the LA area

- Top 5 local “upstream” suppliers to establishments carrying out Stormwater projects led by *Architectural, Engineering, and Related Services* (~\$7.6 million)
- Household spending of workers directly and indirectly involved went to:
 - Mortgage Payments
 - Apartment Rent
 - Health Practitioners
- Local supported:
 - Indirect = 299.2 person-years of employment
 - Induced = 485.6 person-years of employment

Indirect Impacts of Stormwater Projects				
Rank	Code	Industry Sector Description	Indirect Sales	% of Total Indirect Sales
1	369	Architectural, engineering, and related services	\$7,599,737	15%
2	115	Fuel (petroleum refineries)	\$4,250,466	9%
3	360	Real estate establishments (leasing land, renting structures)	\$2,721,928	5%
4	351	Telecommunications	\$1,952,365	4%
5	319	Wholesale trade businesses	\$1,921,392	4%
Total			\$49,999,374	100%

Induced Impacts of Stormwater Projects				
Rank	Code	Industry Sector Description	Induced Sales	% of Total Induced Sales
1	361	Imputed rental activity for owner-occupied dwellings (Repair and maintenance of owner-occupied homes)	\$8,221,491	12%
2	360	Real estate establishments (includes lease payments for land and rental of structures, rental housing)	\$4,974,575	7%
3	394	Offices of physicians, dentists, and other health practitioners	\$4,044,009	6%
4	413	Food services and drinking places	\$3,668,598	5%
5	397	Private hospitals	\$3,414,168	5%
Total			\$71,372,499	100%

Top LA Occupations Supported by Stormwater Projects

Rank	SOC Code - Occupation Title	% of Employment Captured in LA Co.	Mean Hourly Wage	Mean Annual Wage	Entry-Level Hourly Wage*
1	47-2061 Construction Laborers	82%	\$18.83	\$39,176	\$11.95
2	47-2073 Operating Engineers & Other Construction Equip. Operators	86%	\$27.67	\$57,562	\$21.95
3	47-1011 Managers of Construction Trades Workers	78%	\$30.88	\$64,236	\$22.10
4	47-2151 Pipelayers	88%	\$25.70	\$53,448	\$18.30
5	53-7051 Industrial Truck and Tractor Operators	81%	\$14.71	\$30,585	\$11.33
6	41-0000 Sales and Related Occupations	87%	\$23.15	\$48,138	\$15.66
7	17-0000 Architecture and Engineering Occupations	85%	\$31.81	\$66,157	\$20.38
8	17-2051 Civil Engineers	90%	\$36.03	\$74,943	\$25.65
9	11-1021 General and Operations Managers	74%	\$58.08	\$120,795	\$31.76
10	47-2152 Plumbers, Pipefitters, and Steamfitters	84%	\$22.67	\$47,158	\$14.50
11	17-3011 Architectural and Civil Drafters	91%	\$25.10	\$52,216	\$20.11
12	17-1011 Architects, Except Landscape and Naval	92%	\$34.18	\$71,100	\$26.13
13	17-1099 All Other Architects, Surveyors, and Cartographers	92%	\$23.60	\$49,106	\$17.38
14	43-9061 Office Clerks, General	78%	\$12.52	\$26,046	\$9.08
15	11-9021 Construction Managers	73%	\$40.26	\$83,744	\$28.49
16	43-3031 Bookkeeping, Accounting, and Auditing Clerks	76%	\$16.59	\$34,510	\$11.74
17	43-6011 Executive Secretaries and Administrative Assistants	80%	\$19.03	\$39,579	\$14.44
18	47-5021 Earth Drillers, Except Oil and Gas	88%	\$22.92	\$47,667	\$18.26
19	53-3032 Truck Drivers, Heavy and Tractor-Trailer	70%	\$17.16	\$35,694	\$13.60
20	47-2031 Carpenters	44%	\$22.61	\$47,023	\$15.64
Total, all occupations		73%	\$20.90	\$43,480	\$10.80

~73% of workers in LA's stormwater projects were employed by businesses located in LA county. Top occupations are include skilled trades or professional services, paying good wages.